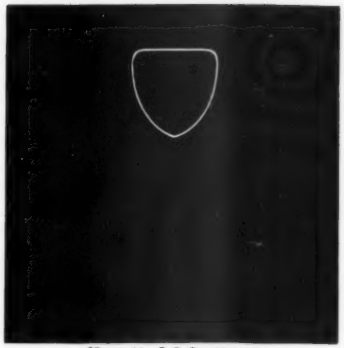
Steel Erection

FORMERLY SAFETY ENGINEERING

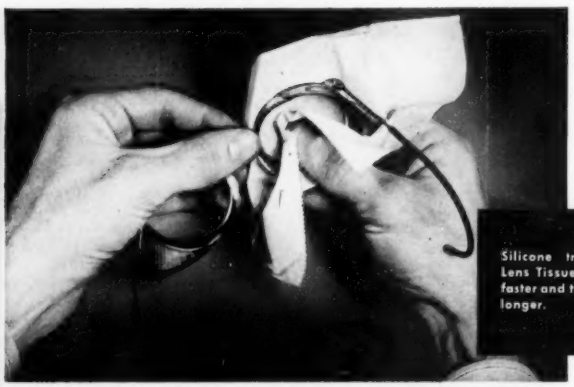
AO Offers Magic Lens Tissue* in a Compact Dispenser



*Treated by G. E. Co. silicones

HANDY, THRIFTY...

KEEPS SAFETY GOGGLES CLEAN · CLEAR · POLISHED



Silicone treated Magic Lens Tissue cleans lenses faster and they stay clean longer.

Gently rub Magic Lens Tissue over a lens (safety goggle or personal glasses). Note how quickly dirt, dust, lint and smears disappear! This special optical cleaning paper of highest quality protects, too. By depositing an invisible coating of silicone on the lenses it makes each wiping *last longer* — and the next cleaning easier, faster. The tissue is strongly tear-resistant and sheets are over 50% larger than usual. 800 per packet.

NO WASTE! Only one sheet can be pulled at a time. Dispenser measures 3¼" x 7¼" x 3⅝" — compact enough to fit almost anywhere. 20-gauge steel construction.

The compact, sturdy steel dispenser is a miser—thriftily dispenses only one sheet at a time. It always works — has no moving parts to go out of order, require service. What's more, its lock prevents pilferage. When refilling, simply unlock and insert refills as easily as a packet of hand towels. 4 wood screws are provided for quick, easy mounting in working areas, near vending machines, in rest rooms, reception rooms, first aid rooms, company garages, cafeterias, etc.

THE COMBINATION OF DISPENSER AND MAGIC LENS TISSUE MAKES LENS CLEANING SIMPLICITY ITSELF — HELPS YOUR SAFETY GOGGLE INVESTMENT PAY OFF!

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Rated capacities based on 5 to 1 safety factor
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Standard unit ACCO *Registered* WIRE ROPE SLINGS, made from preformed wire rope, are stocked by leading distributors who will gladly discuss your sling problems. Custom-made slings on special order. Write today for literature.

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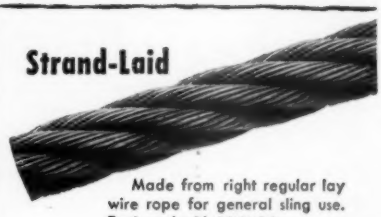
Strand-Laid



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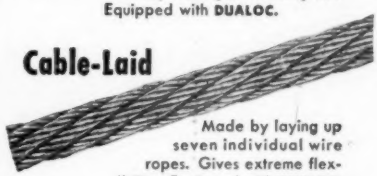
Cable-Laid



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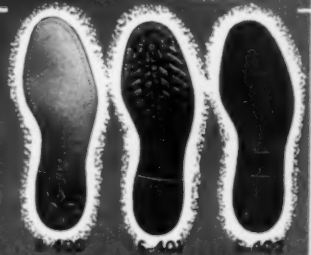

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The Magazine of Safety

Reg. U. S. Pat. Off.

A MONTHLY PUBLICATION DEDICATED TO ACCIDENT PREVENTION, MAINTENANCE, HEALTH CONSERVATION AND FIRE CONTROL FOR EFFICIENT PRODUCTION.
EST. 1901

VOL. 102, NO. 1 JULY, 1951

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PICTURE CREDITS
Our Thanks for the Courtesy
Cover: Westinghouse Electric Corp. Picture shows boring machine equipped with a screen guard to protect operator from sharp, hot metal turnings.

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Fifth of Five

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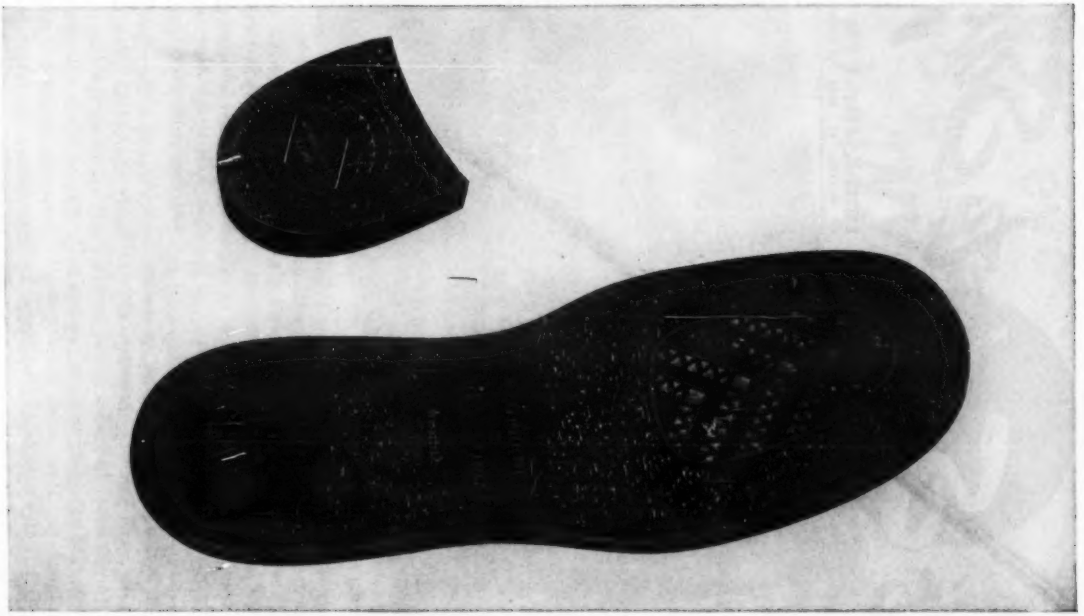

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It's Safe to Say

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★ QUESTION WITHOUT ANSWER

DURING the first year of the war in Korea—and note that we say war, not "police action"—we averaged about three times as many automobile deaths on the home front as the number of American soldiers killed every day in Korea. It is perfectly obvious that exposure to traffic hazards is numerically far greater when we take into consideration the fact that few if any of our one hundred fifty million population can be considered immune to this danger at all times.

The fact remains, nevertheless, that upwards of 36,000 Americans have lost their lives in just about a year and the most thorough statistical organization on earth can only estimate what that figure must represent in staggering economic waste.

It is perfectly true that the chances of being killed outright are materially increased in actual battle as compared with walking across a city street, strolling a country road and entering one's car. But traffic fatalities are all so needless.

According to the daily press, the "big brass" of our armed forces have been somewhat hard-pressed at times to reply to letters from anxious parents who understandably have asked just why their boys are engaged in this Korean mess. In justice to our leaders, however, we have read some very touching answers to this oft-posed question. How much more difficult would be their task if they were asked, "why must my son or daughter be killed in a traffic accident?" We would hate to be in the shoes of the man who is expected to answer that inquiry which can be just as moving as a query involving battle casualties.

Can it be traced to a fatalistic attitude along the lines of "I'll be maimed or killed only when my number comes up"? If so, a tremendous lot of numbers must be coming up in this country every year. Or perhaps there is the same line of reasoning which exists in certain segments of industry—that accidents always happen to the other fellow.

Many years ago, manufacturers of motor vehicles made a vast number of friends for their industry by hammering home to the general public that we have traffic safety largely within our own grasp. This was an excellent public relations job following the theme that "fire is an excellent service but a bad master." So is the motor vehicle. It would seem a logical time for those manufacturers to intensify their safety campaigns through the medium of television, radio and all other public announcements. This crusade should take the form of general motor vehicle operation and not merely caution against excessive speeds. The pedestrian too requires much more in the way of general safety education than he is now receiving, if he is to live long enough to enjoy the comforts of old age.

★ FOUR TO ONE

EXPERTS in the field of accident prevention are generally agreed that the total cost of an accidental injury in any industrial plant is four times the direct cost of medical bills and compensation payments. In these inflationary days, that four-to-one ratio is probably far too conservative.

Strange as it may seem, the belief still exists in too many plants that "the insurance company pays the bill" to which the only possible reply is a vehement, "Oh yeah?" The insurance company makes no reimbursement for cracked morale, for loss of production, for spoilage of material, for the costly expense of breaking in a new replacement. Nor does any compensation insurance premium indemnify the employee for every single penny of wages that may be lost at a time when the cost of food, clothing, shelter and other bare necessities never has been higher within the memory of living man.

In those plants too small to have a full time safety director, the operating official in charge is a safety director, often without knowing it himself. It would seem to us that among his most important duties is the obligation to remind the working staff very frequently and in no uncertain terms that in times like these, neither the plant management nor the employee can afford the luxury of an accident. H. A.

a *GLASS* eye is no bargain at *ANY* price!

"An eye for an eye" is a poor exchange. Especially if you do the trading, and give one of your own for a glass imitation.

The foregoing is reprinted from another of the graphic series of educational pieces in poster and pamphlet form designed by Bausch & Lomb to help sell your workers on a *desire to use* safety glasses.

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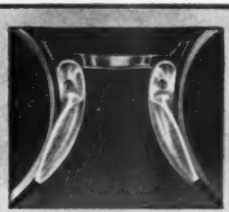

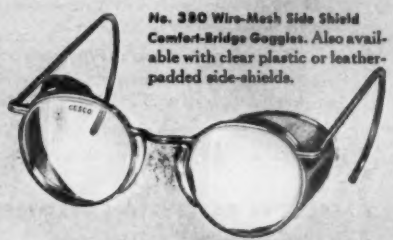

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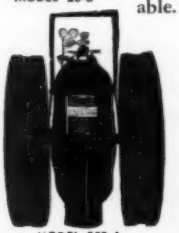
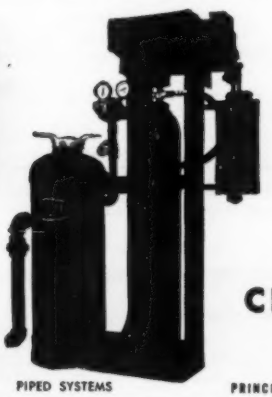

MODEL 350-A

MODEL J1-340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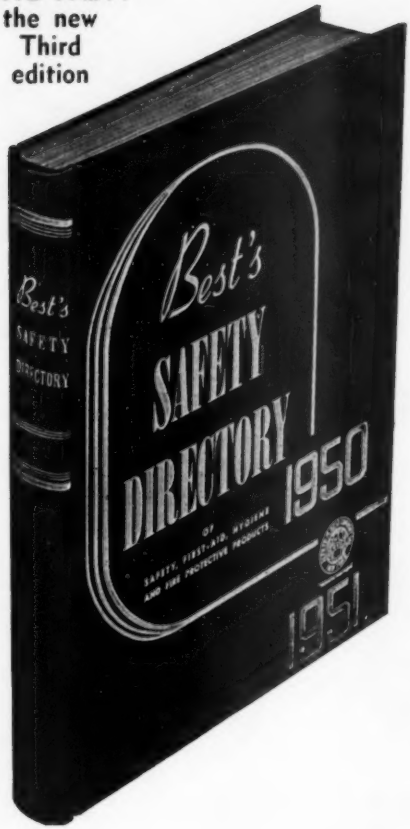

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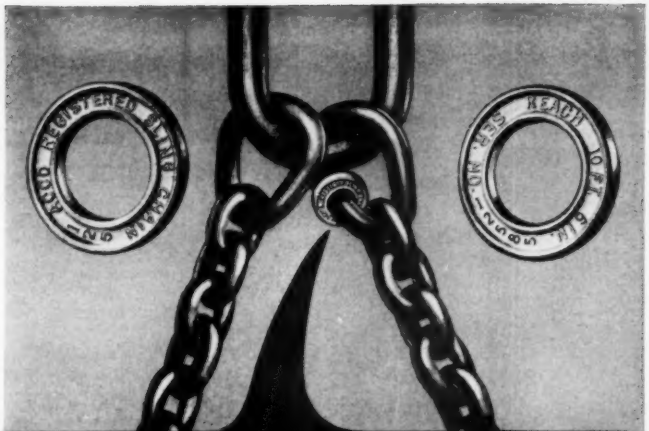

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SAFETY MAINTENANCE & PRODUCTION

VOL. 102, NO. 1 • JULY, 1951

MIDWEST SAFETY SHOW FEATURES EXHIBIT

Throngs crowd Chicago's Congress Hotel to view late improvements in safety devices and products.

REPRESENTING 600 companies from 18 states, upwards of 6,000 delegates met in Chicago's famed Congress Hotel early last month to attend the Midwest Safety Show and Civil Defense Conference, sponsored by The Greater Chicago Safety Council.

Safety representatives of 68 local firms received awards for safety in operation at the two banquet sessions held in the Gold Room of the Congress Hotel. In addition, plaques were presented to 18 winners in the Commercial Vehicle Accident Prevention Contest. Awards were made to the companies based on a comparison of the frequency and severity rate of their accident prevention experience in 1950 as compared with their 1949 performance.

Because of unusual facilities, Chicago's Congress Hotel was a particularly happy choice for session meetings and Exhibit of Safety Equipment. The Exhibit Hall on the main floor of the centrally located hotel permitted visitors easy access to all manufacturers' booths without the necessity of using elevators or crowded stairways. Well-lighted, perfectly ventilated quarters provided by the Congress Hotel afforded leisurely and careful inspection of first-aid products, safety equipment, fire control devices and guards for hazardous machinery.

Training the Foreman

In his address on training the supervisor in safety, G. L. Myers, Training Director of International Harvester Co., Louisville, reported that foreman training in safety practices has increased in importance as the body of safety knowledge and number of machines increased. "Though we have made excellent safety records we are still not satisfied and are continually looking for ways of improving the attitude toward safety. We believe the supervisor is a corner stone in this development and we have described ways one factory is working on this development. Especially have we emphasized the desirability of having the supervisor participate in planning and promoting safety programs. Three of these programs were described in some detail. The vast discoveries about accident prevention, the proven value of training and the recognized importance of the supervisor in any program convinces us that the Salvation of Safety is in large part dependent upon training supervisors in safety."

Swallow False Pride

Both management and employees affected must often swallow their pride and say "We *(To page 42)*

INDUSTRIAL TAPE CORPORATION strives to provide maximum guarding of all machinery. This tape slitter, for instance, has no moving gears exposed except when the operator opens the guard covers to remove the mandrels and tape.

A PERSONAL BRIEFING on safety features is given when an employee begins work on an unfamiliar machine. Here, Lou Parent, Safety Director, is showing an employee how the automatic stop switch is activated by pressure of operator's body.

FLAMMABLE VAPOR in air of solvent drying ovens may reach excessive concentration and become a serious explosion hazard. Combustible gas indicating equipment automatically sounds a warning when concentration increases, and automatically shuts equipment down when danger point is approached. Here, the safety director checks an indicator.

GOOD HOUSEKEEPING and ample working space assure maximum efficiency and safety during packaging operation.

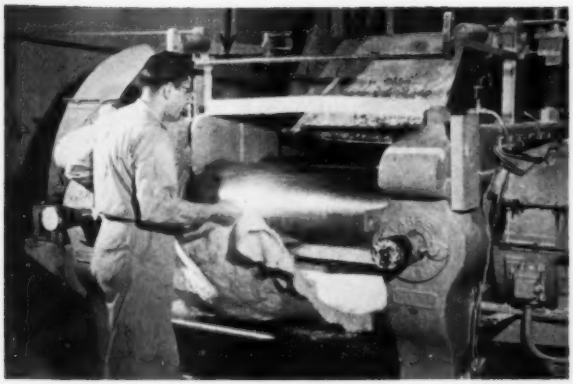
Industrial Adheres

"IT LITERALLY holds the nation's economy together"—so says Louis N. Parent, safety director of Industrial Tape Corporation, in describing the many uses of rubber adhesive-based tape.

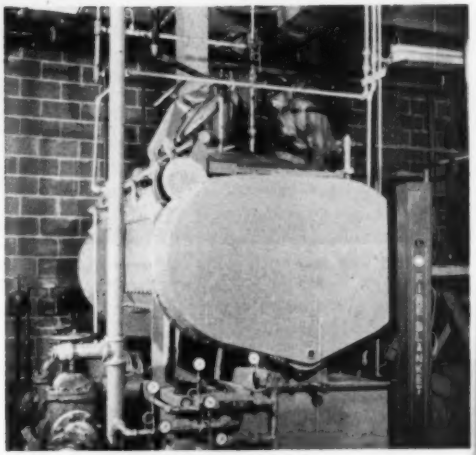
The average housewife or office worker is thoroughly familiar with the little spool dispensers carrying rolls of transparent tape used to repair torn paper, wrap parcels and apply labels. However, a day in the New Brunswick, New Jersey plant of Industrial Tape Corporation was an eye opener.

Tape seals drums, labels their contents, identifies color of materials in drums, distinguishes pipelines, improves pallet loading by stabilizing loads (cloth tape) points out hidden hazards and, well, makes one wonder what we did before paper, cloth or cellophane tape was invented.

Surprisingly youthful and personable "Lou" Parent has brought



ONE OF THE GREATEST HAZARDS in the plant is this rubber sheeting mill. The New Jersey state law requires such a mill to stop with no more than sixteen inches of travel after the safety trip bar has been pulled. Industrial Tape Corporation safety rules go even further and require a complete stop within four inches of travel after the safety trip is pulled. Safety trip is activated when any part of worker's body strikes safety bar (see arrow).



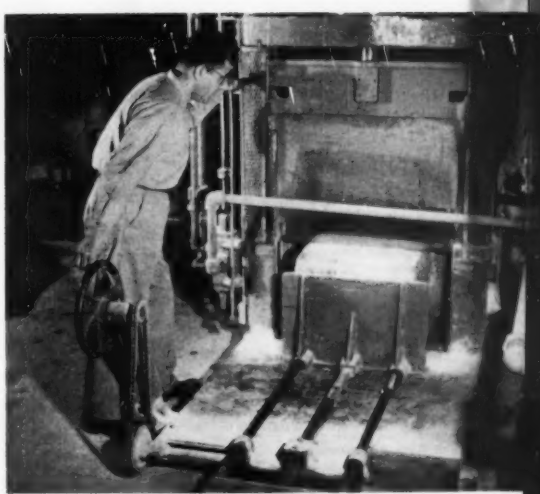
TO PROTECT FACES from flash burns and chemical splashes, all employees in mixing operations must wear face shields.

Tape To Safety

to his job as safety director a modern viewpoint completely foreign to his prototype of a generation ago. He delights in guiding the visitor through the maze of operations needed to produce millions of miles of tape and, moreover, he can speak with the utmost authority in describing every step of the manufacturing process.

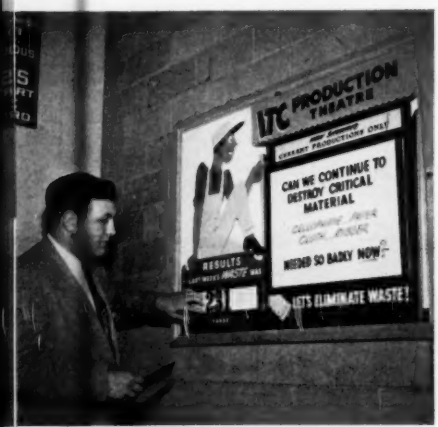
It is interesting to note that Mr. Parent is on a first-name basis with practically every employee in the plant and that each man and woman is eager to cooperate with "Lou" in achieving the utmost safety.

By an interested friendly attitude which respects the opinions and suggestions of the entire working personnel, Mr. Parent has succeeded in enlisting sustained interest in all accident and fire prevention activities. The staff can be sure that no impracticable rules are dreamed up by some screw-ball who may be unfamiliar with production problems. Instead, Mr. Parent talks



GUILLOTINE-type hydraulic rubber cutter constitutes another serious hazard, but safety is achieved by requiring the employee to use both hands to operate the equipment, thus keeping him well removed from the sharp falling blade.

WELDERS must wear safety mask, and, in addition, plant rules require good housekeeping in welding area and quick access to emergency fire blanket.



POSTERS educate employees on the necessity for reducing waste. Each Monday the total amount of waste for the previous week is posted, giving the employees a new target to shoot at in reducing waste.

their language and thus has succeeded in convincing every plant employee that without safety, high production and waste control cannot be obtained.

Industrial Tape is a model of efficiency brought about by every modern innovation. Fluorescent lighting gives a restful glow without glare or shadows to all working areas; soft music mechanically "piped" into the plant helps to reduce tension and produces an atmosphere of contentment.

The visitor immediately is impressed by the cleanliness, good housekeeping, clear aisles and excellent facilities for ventilation one would naturally expect of a subsidiary of Johnson & Johnson, surgical dressing manufacturers.

Uniforms of both men and women are the pride and joy of Mr. Parent from the standpoint of cleanliness and safety. Specially designed charts, graphs and safety messages not only command attention but seem to take all employees into management's confidence. The result, according to Mr. Parent, helps to solve any problems of labor relations which rank with any plant in the industry.

Commonly accepted safe practices are in evidence throughout the plant. For example, no prodding is needed for the use of plastic face shields and goggles when observing or working with flammable liquids. Safety shoes for material handlers are furnished by management. Fire extinguishers and all other safety equipment are clearly marked for instant identification should their use be required.

The first-aid and *(To page 35)*

PROMPT MEDICAL TREATMENT prevents infection resulting from minor injuries. Here, Mrs. Marianne Previte, plant nurse, cleanses wound on employee's hand.

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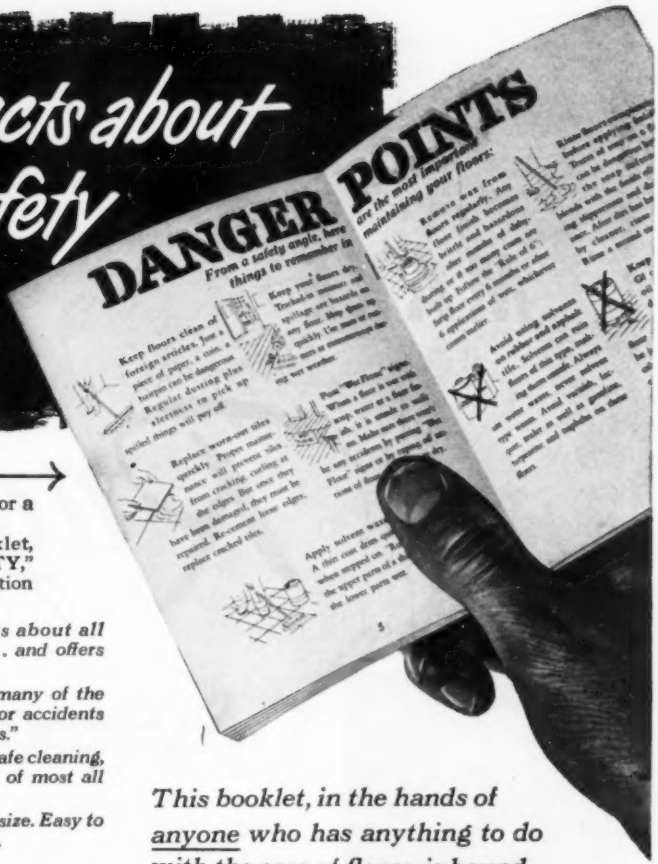

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By EDWARD S. WILTON
Stonhard Company
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MAKE Ragged

Don't let accidents happen. Protect and repair floors for safety and production.

Some practical suggestions for maintaining and protecting concrete and wood floors.

IN "machine minded" America, there is never any need to tell a plant manager that his manufacturing, assembling or transportation equipment should be kept in first class condition at all times. Those are his tools of operation and he knows full well the importance of maintaining them properly. Since the largest, usually the most expensive and certainly the most useful tool in any plant is the floor of the plant building, it, too, warrants proper maintenance.

There is no more important "tool" than a factory floor. There would be no plant without a floor for workers to walk on, materials to travel on, machines to be supported on. And, like any other tool, the floor must be maintained at peak performance to get the most out of plant production. Modern managements recognize the economic wisdom of equipping their plants with every reasonable, sensible aid to production. Many millions of dollars are spent for this purpose every year, and when wisely expended, return substantial dividends in increased output. For example, the physical comfort of the workers is unquestionably a matter of concern. To disregard it, is to invite absenteeism because of illness and leads to mistakes and lowered production.

Present day factory floors are commonly constructed of concrete because, in large measure, of its evenness, hardness, strength and durability. However, there are many floors made of wood, tile and other materials, each presenting its

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FEATURE

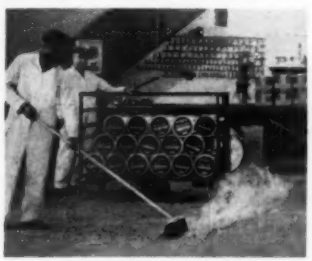
This is the second of a consecutive series of three major articles dealing with Floor Maintenance. The next article of the series will appear in the August issue of SAFETY MAINTENANCE & PRODUCTION.

FLOORS

Rugged

own maintenance problem. Let us first review the most popular type:

Concrete Floors



"Dusting" signals caution! Concrete floors will wear out quicker than any other part of a building because they are subjected to traffic's abrasive wear.

Concrete Floors That Are "Dusting." Wear of every sort goes on constantly. A well-made concrete floor will have a long and useful life—provided it is maintained in its original form. However, just as a machine needs lubrication to prevent wear and eventual failure, so a concrete floor needs and deserves protection from wear. It is a foregone conclusion that any busy concrete floor will wear out if not protected.

Usually, the first sign of wear is "dusting." In these cases, the floor is actually being swept away. This is caused by particles of sand and cement breaking away from the surface due to abrasive wear. This can be prevented or corrected by means of a chemical compound which penetrates the pores of concrete, reacting with the cement to harden and fortify the surface against the devastating effects of abrasion. The treatment provides at the same time, protection against the disintegrating effects of greases, oils and acids.

Failure to heed "Dust" warnings results in ruts and holes—hazards to production.

Concrete Floors Which Have Become Rutted and Worn. If concrete floors, traffic aisles, platforms

or stair treads are rutted, broken and uneven, they are an accident hazard. Not only are rough floors rough on people . . . they cause time loss and merchandise damage.

Economical, easily installed and efficient compounds are available to correct this condition. One of these compounds, especially, has a number of outstanding features that makes it even better than concrete itself. As you know, concrete is cold, damp and hard on the feet. Continual standing or walking on hard concrete causes weariness, back aches, body pains and irritability. These factors have an adverse effect on the workers' output. However, the plastic compound provides a surface which is resilient and shock absorbent. In addition, it is warm, smooth, level, fire-resistant and chipproof. An important factor in its application is that no chipping or chopping of the present floor is required.

The severe disintegrating action of oils, greases and chemicals on concrete floors can now be prevented or repaired with industrial compounds, easily applied by a company's own maintenance personnel.

Concrete Floors Subjected to Oils, Acids, and Severe Conditions Require Special Treatment. When chemicals, acids or strong alkalies spill on a concrete floor, or where oil and grease conditions exist constantly, concrete will not stand up for a satisfactory length of time. Contrary to popular conception, concrete is actually porous and slowly disintegrates under these conditions. Even the plastic compounds, which are suitable floor surfaces in most cases, are attacked by these severe chemical reactions and should not be used.

However, modern research has developed flint-hard, extremely dense flooring products which are lastingly resistant to the above mentioned adverse influences. One in particular is now widely used by breweries, canneries, dairies, bakeries, laundries and heavy industries because of its ease of application and amazing strength—it's actually stronger than concrete itself. It bonds securely to the existing surface without shrinking, and can be installed at a minimum of one-half inch thickness. The work can be done by the plant's own maintenance crew with minimum loss of production time.

When a Repair Has to be Made in Concrete—FAST! There are quick acting masties with an aggregate and filler, so compounded that they require no drying, setting or curing time. In plants where floors and outside areas are used constantly, where detours are often impossible, and the continual flow of traffic permits no delays for repairs, this compound has been developed to provide a quick yet permanent patch, either for concrete, brick or stone surfaces. Patches can be made in a few moments since its simple installation requires no heating, costly chipping or otherwise involved preparation. Simply remove it from the container, tamp it into the rut or hole, sprinkle with dry cement—and let the traffic roll.

Science has developed a quick-acting compound that fills dangerous holes fast. Just fill, tamp and let the traffic roll.

Wood Floors

You have just found ways to make concrete floors safer and more productive. The same *(To page 51)*

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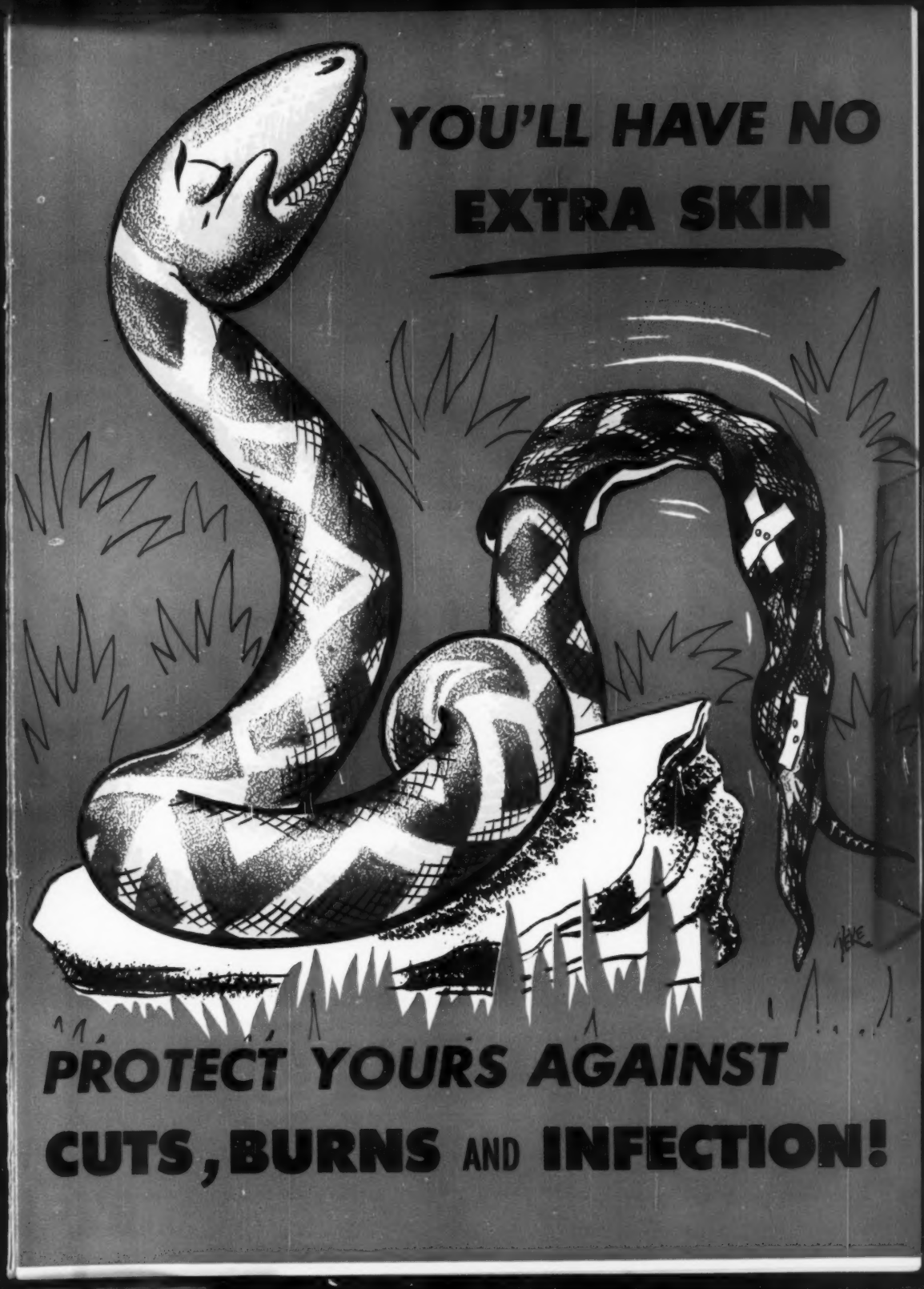
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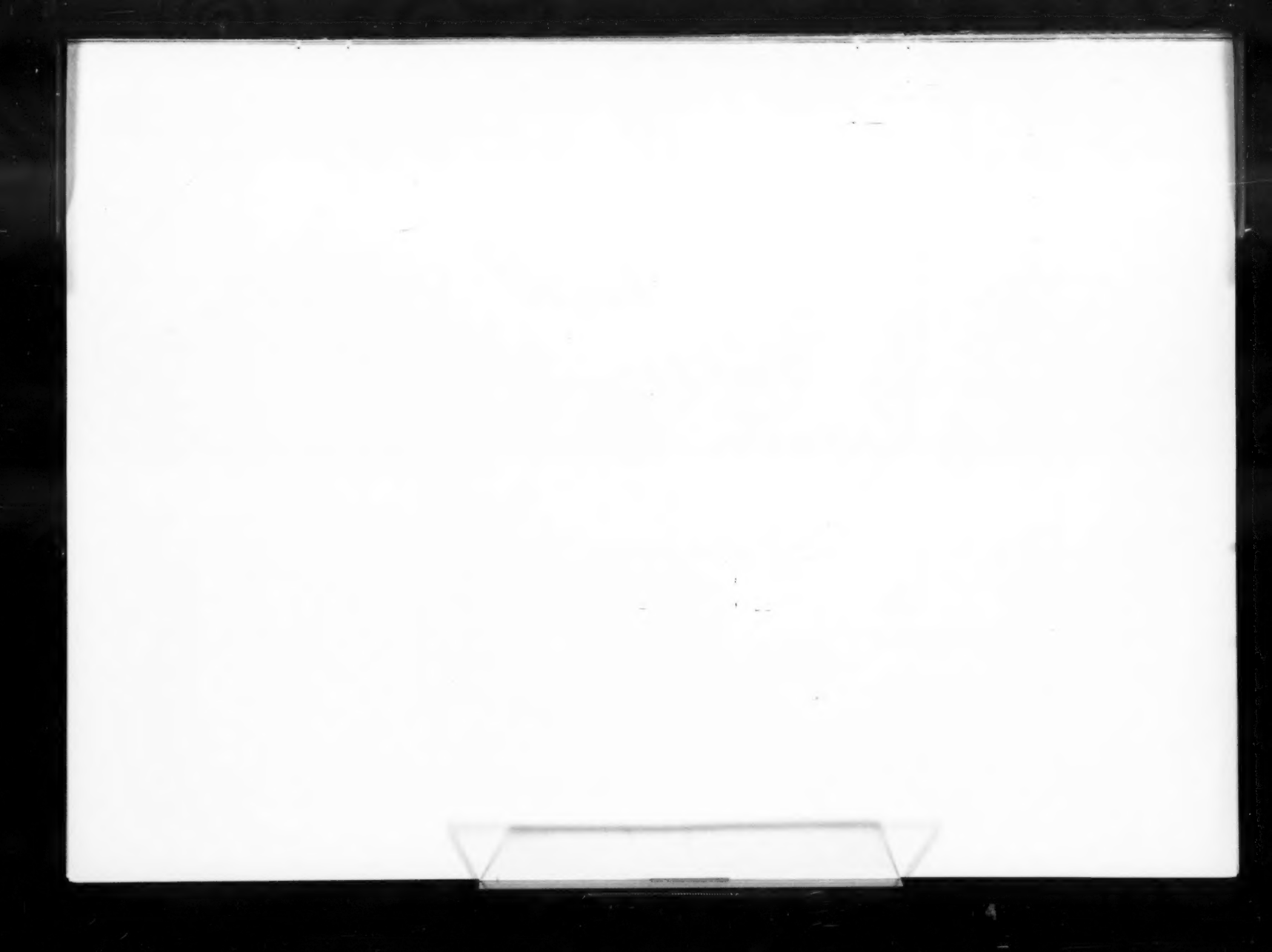
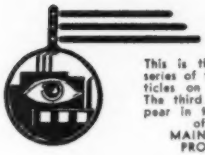


FEATURE



This is the second of a series of three feature articles on Eye Protection. The third article will appear in the August issue of SAFETY MAINTENANCE & PRODUCTION.

By JOHN A. HOWLAND

A molded all-plastic goggle for impact hazards.

EYE PROTECTION IS EASY

The days when workers might have a legitimate gripe about wearing heavy, uncomfortable goggles are over. Plastics have revolutionized the thinking of both employers and employees about eye safety.

EACH year industrial workers have 300,000 eye accidents on the job as a result of the work they are doing, mainly because ordinary protective precautions have not been taken. The estimated cost of these accidents has been conservatively placed at $200,000,000.

Certain industrial jobs such as machine shop work expose the eye to injury more than others and the machine shops of the nation subject a large percentage of their operatives to eye injury every day. Almost every phase of industrial labor entails constant exposure of the eye, and losses due to eye-injury, no matter to what degree they may prove disabling, are costly to both machinist and employer.

The American annual machine shop accident "picture" looks like this (in order of frequency of injury):

170,000—to the hands
115,000—to the head (except eyes)
100,000—to the eyes
95,000—to the toes

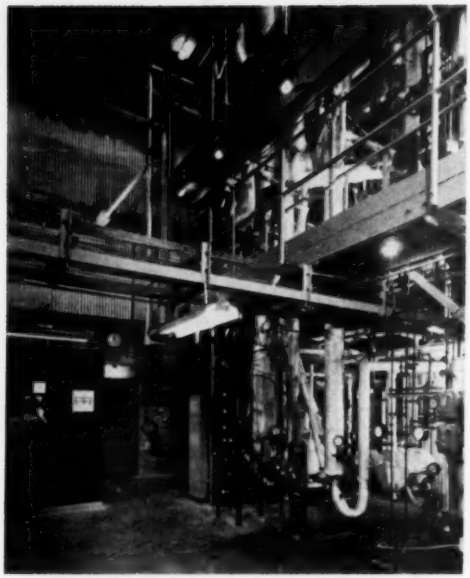
The average frequency rate of disabling eye injuries has been put at 0.67 man hours. Owing to the nature of some shop operations, these figures should be significant to the employer.

Employers of this country as a whole have been eager to adopt preventive safety measures and methods for employees, including the widespread use of safety goggles. But, in many of these plants, management is not keeping accidents to a minimum because the eye protection they are providing is not adequate. Not enough care has been taken, in many cases, in selecting the right safety goggles for the job.

The Production Front

Certainly the eyes of our defense workers will have to be given extraordinary protection if we are to get the production rate called for. This, of course, is the case with ALL safety measures. For too long, however, some employers have supplied their employees *(To page 48)*

A spectacle type of plastic goggle.



View of fluid catalytic cracking plant, which, along with the other facilities, will be made available for the testing of new ideas on petroleum production and products.

SINCLAIR

This double-barreled story shows the Sinclair foresight in:

1. opening its laboratories for independent research,
2. pre-planning its operations to minimize hazards to personnel.

THE Sinclair Research Laboratories, Inc. in Harvey, Illinois, are taking the long view. Their research facilities, which have been in operation since 1948, were designed from the very start with the safety of employees, property and the community in mind. By looking forward, by anticipating what might happen, the *possibility* of an accident has been changed into an *improbability*.

Similar foresight is evident in the recently revealed details of "The Sinclair Plan" for giving the little-known inventor a chance to have his ideas on petroleum development tested in the Sinclair laboratories with all their specialized and expensive equipment. This plan means that there will be an expansion rather than a stifling of ideas, that American ingenuity will have a chance to develop as it has in the past, and that the general public as well as petroleum research will be benefited. By looking forward, by inquiring into what may happen, Sinclair is helping the *improbability* of today become the *possibility* of tomorrow.

Mr. C. P. Spencer, president of the Sinclair Oil Corporation, said that the facilities of the research laboratories will be open "to any American with an idea for a new or better petroleum product or application." He pointed out that Americans have always been an inventive people and that in the early days an amateur mechanic or scientist could invent and improve a device in his attic, basement or garage.

"Today, however, the man with an idea often needs years of time, the help of an army of specialists, and thousands, even millions of dollars' worth of equipment to prove out his invention. This plan provides all the necessary technical facilities and skilled personnel to any American with an accepted idea, to bring that idea from the roughest scratch-pad stage through to final pilot-plant testing."

The Sinclair organization believes that their program will uncover new ideas that might otherwise go unnoticed and unused. Mr. Spencer, emphasizing the national importance of the plan, said, "The need for new ideas, new products and new applications is greater today than ever; for much of our national future may rest on the unhampered continuance of American inventiveness. The success of this plan depends on finding those Americans who have ideas that can be brought to final usefulness."

Outsiders who would like to have their petroleum ideas tested in the facilities of a large corporation are invited to submit their ideas to the Sinclair Research Laboratories. To protect the inventor as well as the Laboratories, every idea submitted must be covered by a patent application or a patent.

The directors will select the most

An engineer checking the operation of internal combustion test engines. Typical of the principle that safety be built into the plant, the engine testing facilities permit operation by remote control panels. The operator is separated from the engines by a thick wall and a triple-plate glass window. This eliminates noise, vibration, and keeps the man a safe distance from the machinery.

PLANS FOR TOMORROW

promising ideas and, depending on the available capacity at that time, will thoroughly explore the possibilities of the suggested item. In return for the Laboratories' investment of money, time, facilities and personnel, Sinclair reserves the right to use the invention free of royalties. The inventor, however, is free to sell his idea to any other interested parties or make whatever other arrangements he wants.

Facilities Available

The Sinclair Research Laboratories at Harvey occupy thirty-eight acres and consist of nine modern buildings, mostly air-conditioned and sound-proofed. The administration building, in addition to the seventy-six offices, contains two conference rooms, a library, and a cafeteria. Each of the other main buildings is devoted to specific types of petroleum research.

The buildings and equipment were designed to permit great versatility in the research projects to be undertaken, and the most modern instruments are available here for rapid and reliable analyses. There are ultra-violet, infra-red, and mass spectrometers, electronic calculators, emission spectrographs, X-ray diffraction instruments and an electron microscope.

In general, the work of the laboratories is of two kinds: analytical and physical chemical research of petroleum products; and experiments for practical application of the products. In addition to the general analysis facilities, there are specialized laboratories for studying lubricating and cutting oils, corrosion resistance, fuel oils, heating oils, petroleum distillation and all types of catalytic research.

When the physical and chemical properties of a product have been thoroughly analyzed, it may be sent to an appropriate applied research laboratory. A wax product may be tested on a paper-waxing machine. A new catalyst may undergo production in various types of machines. Lubricating oils, fuel oils and gasoline products may be sent to one of the engine laboratories where its characteristics under actual operating con-

Protective clothing and face shields are worn by technician while pouring acid into a smaller bottle. When large acid bottles are not in use, they are kept in acid bottle carriers like the one shown in the picture. All flammable solvents are kept in metal safety cans as illustrated.

ditions can be explored, including sub-zero temperatures. Many different types of motors are set up for testing everything from rocket fuel to anti-knock gasoline. Experimental furnaces and boilers are used for testing heating oils.

Finally, automotive petroleum products may be tested in the trucks and cars of the test fleet. There is also a large pilot plant building where production problems can be ironed out before a producing plant is built.

Hazards Minimized

With all this diversified work involving products whose characteristics are unknown as well as those known to be dangerous, the Sinclair Research Laboratories are faced with unique safety problems in comparison with the average industry. That the company has been acutely conscious of the accident problem is immediately evident to the most casual visitor. The key to their safety program is: Isolate the hazard.

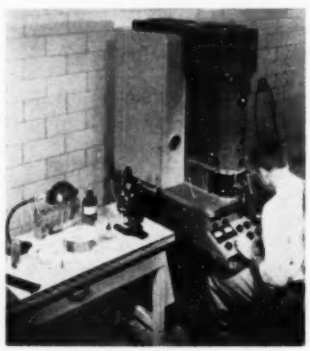
Even the construction and arrangement of the buildings shows the importance that has been given to decentralization. Instead of housing the facilities in one large building, the plant consists of nine brick-faced steel and concrete block buildings, entirely separated. This arrangement permits specialization of equipment and greater efficiency, but safety was also an important consideration in the pre-planning. Even the sidewalks are placed far enough away from the building where high pressure work is done so that, in the event of an explosion, pedestrians would not be hit by flying glass from the windows.

Isolation of the hazard is exemplified not only in the arrangement of the buildings, but also in the arrangement of the operations within the buildings. In the engine laboratory the test engines are mounted in vibration dampening mounts in sound-proof rooms. The engines may even be adjusted by remote control, with the personnel and instruments safely isolated from the engine by a thick wall with a triple-plate window. To protect the health of employees, the exhaust from the test engines is connected to an air duct system and the fumes are removed by water-dampening before the air is released to the outside.

Ventilation is of course a serious problem in all the laboratories where petroleum products are handled, from the standpoints of both health conservation and fire prevention. The necessary air change for the various types of research operations has been carefully calculated, and the air flow is maintained accordingly. Fume exhaust hoods are provided in the laboratories, with connections to individual flues, and also for the welding operations in the plant's shop.

Fire Prevention Equipment

"Isolation" is again the keynote for the fire prevention equipment. Each building is sufficient unto itself for extinguishing devices. Since most of the fire hazards are ones involving flammable liquids and electrical equipment, carbon dioxide and dry chemical extinguishers are the primary weapons. Each building is well supplied with both hand and wheeled units of various sizes, placed at strategic locations.



Technician using an electron microscope. Capable of magnifying up to 100,000 diameters, the instrument is used for study of external structure of catalysts, clays, waxes, greases and other solid materials.

In addition to these manually operated fire extinguishers, such structures as the main laboratory building are equipped with carbon-dioxide fire-hose systems to provide large quantities of the extinguishing agent. Furthermore, the storage areas have a completely automatic fire detection and carbon-dioxide extinguishing system. When a fire activates the system, it sounds the plant fire alarm, turns off the air conditioning, delivers carbon dioxide to the storage space, and closes the fire doors, which are also equipped with fusible links for automatic operation.

The plant has its own proprietary alarm system with, in addition to the automatic devices, manual pull-boxes spaced at convenient intervals throughout the premises. A fire marshal is on duty during every shift to direct any emergency fire measures, to train employees in fire fighting techniques and to investigate fire hazards in the plant, such as by testing with an explosive vapor detector.

The training of the fire crews is made as thorough as possible. The men gain confidence in the handling of extinguishing equipment through practice on test fires. Emergency drills are held often, averaging once a week in good weather but at irregular and unspecified times to keep the crews alert.

Maintenance plays an even more important role in fire prevention at the Sinclair laboratories than it does in industry. Most of the floors are asphalt tile, from which spills can easily be removed. Closed-cover cans are provided throughout the plant for the disposal of oily rags and waste.

Safety Equipment

The accident prevention problems of a research plant such as this are quite different from those of the average manufacturing factory. The work of the various departments is highly specialized and the safety problems differ accordingly. Consequently, *(Page 39)*

Spot fumigating of flour mill machinery.

PEST CONTROL IN THE FOOD INDUSTRY

By R. LAWRENCE BRETT
Innis, Speiden & Co.
New York, N. Y.

Why is sanitation vital to vermin control?
How can pests be "built out"?
What types of fumigants and poisons should be used?

THE subject of vermin control in the food industry has attracted special attention for the past few years. Control of unwanted pests has always been important, but with the present stringent regulations of the federal Food and Drug Administration being actively enforced, the proprietors of food processing establishments are under pressure to remedy effectively infestation and the possibilities of contamination.

This magic word, "contamination," is the basis on which the authorities are operating. Under the Food and Drug Act, government inspectors have the power to seize and condemn any food product moving in interstate commerce that shows signs of contamination. This means that in addition to judgments for adulteration, the presence of anything that is not a necessary adjunct in the finished food product will make the processor liable for governmental action. Such contamination may include insecticide residues, insect fragments, signs of rodent excreta, rodent hairs, as well as live insects. To date, most actions against processors have been due to the presence of rodent hairs.

Discussion as to the unfairness or hardships imposed by the interpretations of this act is not the province of an article such as this. The legislation has been enacted and we are bound by law to live with it and by it. Every conscientious manufacturer with any sense of responsibility towards the buying public takes pride in his product and does everything in his power to see that his customers receive only the purest foods. Again it is only due to the unscrupulous practices of a few individuals that our elected representatives have seen fit to enact such legislation.

In order to live with this law, we must take steps to ensure that insects and rodents and their excreta and mortal remains are kept

FEATURE

This is the third of a series of three feature articles on Plant Sanitation. The first two articles, dealing with plant cleaning and plant painting, appeared respectively in the April and May issues of SAFETY MAINTENANCE & PRODUCTION.

out of foodstuffs during the actual processing and during storage before their consumption. This sounds like a difficult problem, but it is being solved every day by thousands of firms all over the country. Constant vigilance is the keynote to successful pest control.

Preventive Action

Effective control begins with prevention. The old saw about "an ounce of prevention is worth a pound of cure" is truer with pest control than many other fields. Institute regular inspection tours to check on possible sources of contamination. These will include incoming shipments, returned containers, spillage on floors and loading docks and other likely sites.

To tabulate, prevention calls for:

1. Good housekeeping
2. Proofing, or "building out"
3. Controlling invaders with insecticides and rodenticides.

1. Good housekeeping. This phase of prevention is all-important and the least stressed. Vermin profit from man's sloppy habits. Accumulations of waste food materials in corners, conveyors and behind machines, are potential breeding places for vermin. Keep them clean and you reduce your future problems considerably.

2. Proofing or "building-out." Our government has spent considerable time and money preparing bulletins and pamphlets on this phase of vermin control, especially the control of rats. All are available from the Superintendent of Documents, Washington 25, D. C. or through your Representative. Most are excellent and deal with the biology of these animals and the construction of mechanical barriers to help prevent infestation of properties by these unwelcome invaders.

3. Insecticides and rodenticides. In spite of all our careful preparations, some vermin may get by and attempt to establish themselves. Now is the time to use insecticides and rodenticides. If our sanitation procedures have been carefully carried out, we should have little to worry about. While it is true that the constant use of poisons acts to prevent the build-up of populations, their use alone to the exclusion of proper sanitation procedures can be exceedingly expensive

Spraying insecticide in a grain elevator.

and sometimes not entirely successful. Human nature being what it is, a great number of people have the mistaken notion that these newer chemicals can and will replace constant vigilance and faithful, careful sanitation methods.

When vermin do appear, act swiftly and thoroughly. Use the right materials for the job and use them well. Here is where good methods and experienced personnel come to the fore. In the course of regular inspections, the staff should become familiar with every nook and cranny of the plant. These "nooks and crannies" are the ideal nesting and hiding places for vermin.

This article is not written as a primer on the types and life cycles of insects and rodents to be found in food plants, but rather to give the reader an idea of what can be expected of some of the more common insecticides and rodenticides.

Control by Fumigation

Insecticides and rodenticides are roughly divided into two main classes, fumigants and poisons.

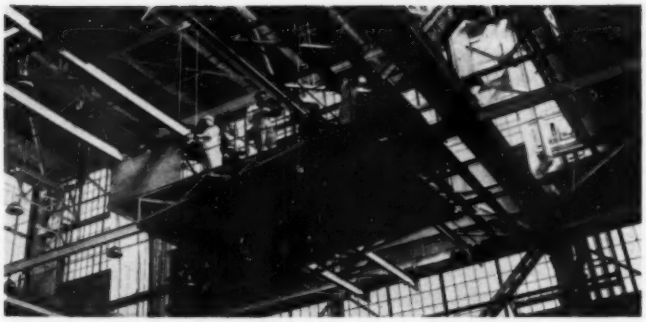
Fumigation involves the introduction of lethal gases into an enclosed space as a building or vault where the fumes can be contained for a sufficient length of time to effect a kill. Some industries need to be fumigated from one to several times per year. This varies with the particular industry and the section of the country. A very few years ago, fumigations were conducted more often. Now, with the advent of more effective insecticides, "spot" fumigants, much safer and more effective rat poisons, this situation has changed radically. For example, a few years ago, bedbugs were a common pest in the American home, more common than we care to remember. Home fumigations were conducted almost continuously by the average pest control operator. DDT took care of the bedbug so well that today entomologists have a difficult time finding this insect for their collections.

There are three commonly used fumigants in use today. These are hydrocyanicacid gas, methyl bromide and chlorpierin. All have their particular advantages, and by the same token they have their drawbacks. All are toxic in the proper concentration and should not be applied by irresponsible persons. The least troublesome of these is chlorpierin. This material is commonly known as tear-gas and can be applied by a crew with very little previous experience.

Suggestions on the correct application of the above materials can be obtained from the manufacturers.

Insecticides

The newer chlorinated hydrocarbon insecticides, DDT, chlordane, lindane, benzene hexachloride and the like have a definite place in food plants. However, this place is away from possible contact with and contamination of foodstuffs. Chlordane is the present insecticide of choice for roach control in areas where there is no contamination hazard. Lindane is excellent for housefly control. DDT is still used to some extent but *(To page 47)*



Platform suspended beneath traveling crane provides safe footing for maintenance crews working outside the cage or on hoist mechanism. The platform also affords protection from falling hand tools, for workers on factory floors—some sixty feet below.

Safety Is UN-Saturated

Safety has no saturation point. There is always something more than can be done to eliminate those last few accidents. Here are some of the recent safety innovations made by The Glenn L. Martin Company to better their accident record.

PLANT safety programs are abundantly justified, to be sure, on the side of manufacturing economy alone. Costly production setbacks are being avoided every day by the application of safety measures in shop and laboratory, in hangar, office and hallway. It is good business to prevent injuries to personnel—just as it is good business to prevent damage to tools and materials.

But economy is strictly a secondary consideration in the planning and perpetual campaigning for the personal safety of the nearly 13,000 individuals who are the Glenn L. Martin Company. Where limb and life may be at stake, safety is sought for safety's sake.

The Martin Company, during 1950, achieved the best of its annual safety records since before the war, when such records were first kept on a year-to-year basis. This may be attributed, chiefly, to employee cooperation in correcting faulty work habits and in observing safety precautions at all times. The Martin tally of lost-time accidents were held to 4.4 per million man-hours, against an aviation industry figure of 4.6 for 1950. For the same year, a 4% increase in disabling accidents was reported by the U. S. Department of Labor, with respect to all American Industry.

The Set-Up

The Martin accident prevention program operates in three essential ways, as follows: (1) by alerting employees to the high price of carelessness and educating them in safe job practices; (2) by enforcement

Paint containing an abrasive, when applied as shown to surfaces of scaffolding steps, largely eliminates danger of slipping. Surface is proof against foot-slippage —even when wet. The red color makes steps easier to see.

Band-saw with detachable half of lower section of gaurd held open to disclose metal safety blocks. These are positioned, during operation, on either side of cutting band. The tips of man's fingers, extending as a "V", point at the two blocks. The narrow (1/8-inch) slit between blocks, through which the saw descends, prevents the band—on breaking—from flying wild.

of accident-prevention rules and rigid inspection of all plant areas for the elimination of hazards; and (3) by the installation of safety devices on equipment and issuance of such items as goggles and gloves, wherever required for the workman's protection.

The system is organized around the work of two Shop Safety Committees—one for each factory shift. Appointed by the department heads, the 40 members of the day shift and 16 members of the night shift Safety Committees meet once each month to review the causes of past accidents and discuss measures for the prevention of their recurrence.

Their duties by no means end there, however, since each member is held responsible for the spotting and prompt reporting for correction of any hazardous condition he may find in his area. A half hour is allotted to these committeemen, daily, for their regular rounds of inspection in the interest of safety. In addition to the Shop Committees, there is the Major Safety Committee, made up of supervisors of most of the major shop departments—plus representatives of the Personnel Department. It meets regularly to discuss accident-prevention measures and to prepare company-wide safety recommendations.

Recent Safety Innovations

The following are recent examples of improvements effected as a result of the company's safety program: A movable, railinged work-platform, suspended under the operator's cage of an overhead crane, affords protection to maintenance crews high above the factory floor—at the same time eliminating any danger from falling hand tools. Non-slip abrasive paint is being applied to stairway treads. A new type of guard prevents broken band-saw blades from flying free. Shop benches are being equipped with stop blocks, so that drawers cannot be pulled all the way out—to fall on knees.

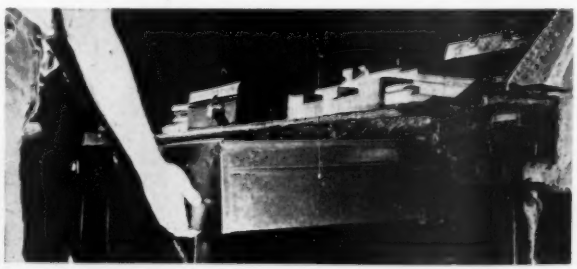
Each electrical hand tool, on being issued, must bear a metal tag certifying to its safe workable condition. Improved design of wooden scaffolding, mirrors placed at aisle intersections, respirators against dust and fumes, sanded handrails to prevent splinters—these are typical safety items at the Martin plant.

In addition to "No Smoking" signs and other such standard reminders to caution and carefulness, Martin people are exposed every week to a fresh set of dramatic posters, to jog their appreciation of the importance of safe work habits. Articles in the company's internal publications, extended by personal talks with supervisors, as well as motion pictures, bulletin notices and safety leaflets—all help to bolster the ceaseless campaign against accidents.

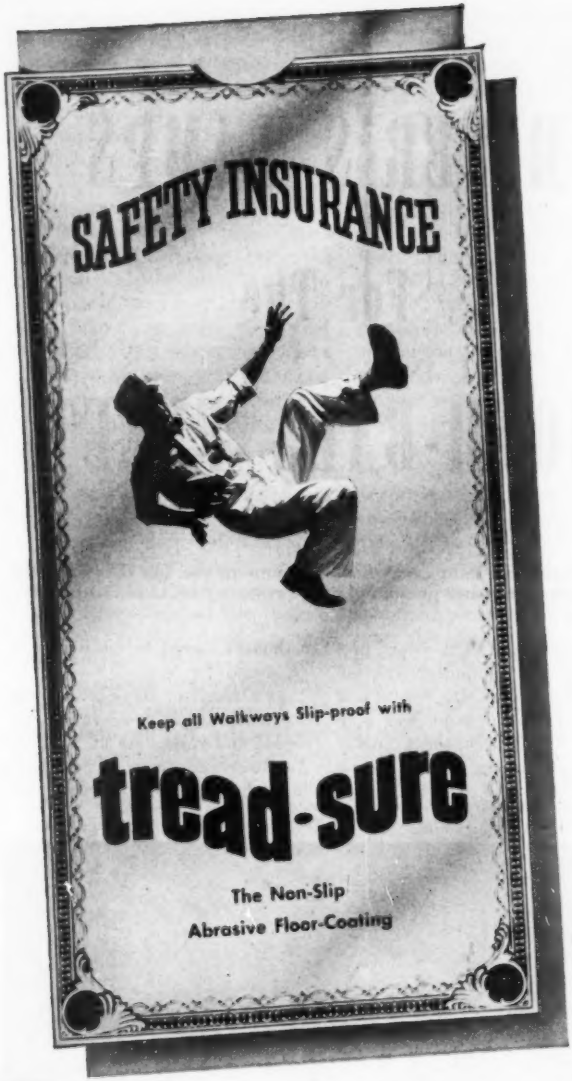
Complete, fully staffed hospital facilities are constantly available in all major factory buildings, when accidents do occur. As might be expected, these hospital stations are principally occupied with the simpler first aid chores generated as a matter of course in the fidgets of some 125,000 busy fingers. The common cold and other such general ailments also are handled by the staff along with the cuts, bruises and other minor casualties that turn up almost every day.

Careful records of all cases are maintained, for study by departmental supervisors and the Safety Committees. A clear distinction is made between lost-time accidents and those calling merely for first aid treatment on the premises. From these data, statistics are compiled at regular intervals. Tabulated for the special benefit of top management, comparative figures reveal any trend toward a critical situation in any part of the plant, or any type of activity—before it can fully develop. Prompt remedial action always takes care of that.

Story and pictures by courtesy of The Glenn L. Martin Company's "Martin Star."



Heavy drawers in work tables are prevented from sliding free and falling when pulled out to limits, by means of counter-sunk bolts or angles screwed to undersurface of table top. These stops arrest drawer near the end of outward slide path. The stops with which such drawers come equipped, are usually broken off in the course of extended use, endangering worker's legs.



Horn Tread-Sure produces a heavy long-wearing anti-skid surface on wood, concrete or steel. Tread-Sure is an abrasive filled brush-coating, simple and inexpensive to apply on any size area.

Tread-Sure is resistant to gasoline, alcohol, oil, grease, detergents, industrial waste and many types of acids. Tread-Sure provides a non-skid safety footing, giving the worker confidence and security by reducing accident hazards.

Tread-Sure maintains traction and resiliency and is comfortable to stand on. Designed for exterior as well as interior use, it may be brush applied over other paint or direct to unpainted surfaces. Used as it comes from container. Three non-glare colors—Battleship Grey, Red, Green.

Uses for Tread-Sure	Used in
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Grease racks—work benches	Milk,
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Washrooms—showers	Hotels,
Elevator floors—landings	Hospitals,
Machinery platforms	Schools,
Scale platforms	Railroads,
Foot pedals	Utilities,
Decks—hatch covers	Service Stations

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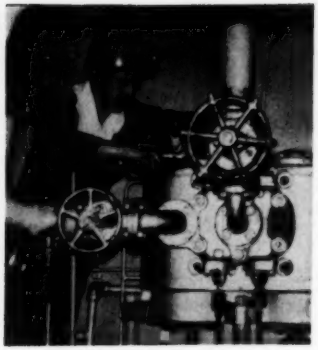


Working in out-of-the-way places aboard reserve fleet ships has been made easier through the use of miner's cap lamps. The lamps provide adequate illumination and eliminate the fire and explosion danger created by extension cords and unprotected light bulbs. Workmen also are supplied with laminated plastic protective helmets which were designed for use with the lamps.

MINER'S LAMPS For The MOTH-BALL FLEET

Miner's cap lamps may not have gone to sea, but they are helping maintenance personnel in the reserve fleet to see with safety.

FIRE and accidents caused by electrical hazards aboard vessels of the U. S. Maritime Administration's reserve fleet have been eliminated through the adoption of miner's battery cap lamps for preservation work by E. W. Gorman, Chief, Division of Vessel Custody, and Captain M. Dinneen, Chief, Fleet Operations Branch.

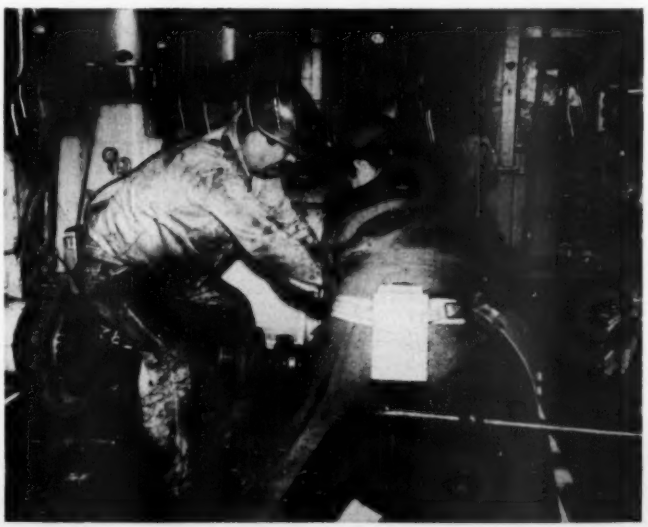
A study by the Administration's Safety Department had revealed that electricity was the major contributing factor in fires aboard ships of the "moth-ball fleet."

Naked, unprotected high wattage electric light bulbs in extension cords and defective circuits in the preserved vessels were the main causes of fires. Extension lights had to be used in engine rooms usually because illumination provided by the ship's lighting systems was poor as a result of dirty or unpainted bulkheads and machinery that had little reflective properties. In addition, oil and grime on vapor-proof globes in engine rooms blotted out light. Lights on extension cords and flashlights were used under certain circumstances.

In exhaustive tests to develop corrective measures for the hazard, all types of commercial extension lights were tested. It was found that the increased light output provided by this equipment was impractical when the size, weight and cost of the equipment was considered. In addition, cords quickly deteriorated in the oil and grease on the ship.

Miner's Lamps to the Rescue

As a result of these tests it was decided to equip preservation personnel and inspectors at Maritime Administration reserve fleet bases throughout the country with elec-



These men aren't miners—they are maintenance personnel aboard vessels of the Maritime Administration's reserve fleet. They are wearing regular electric miner's cap lamps to reduce fires and accidents aboard the ships of the "moth-ball fleet."

tric cap lamps. The model selected was developed in 1950 after several years of research by scientists of Thomas A. Edison, Inc., General Electric Co., and Mine Safety Appliances Co.

This lamp, a direct descendant of the first miner's electric safety lamp invented in 1915 by Thomas A. Edison, has 100 times more illuminating intensity than the original model and gives 25 per cent more light than ever before available from a cap lamp. Because of the light they provide, these lamps are used extensively in metal and coal mines and other hazardous areas for illumination. Originally, they were designed to improve safety in gaseous mines where open flames had caused many disastrous explosions.

Because of their combined safety features and illuminating ability, the cap lamps proved to be the remedy for electrical fire hazards in the Maritime Administration Reserve Fleet.

As explained by the Administration's safety engineering staff, the cap lamps provide brighter and more adequate light and eliminate stringing and moving extension cords and workmen being encumbered by flashlights. These practices not only wasted time but caused many hazards such as tripping or falling because of need to hold equipment with one hand. Since the lamps have been used, workmen can perform their duties more efficiently because of the better illumination. It is no longer necessary to employ costly power barges as a source of electrical energy for illumination while servicing the fleet. This, it was pointed out, has resulted in a direct savings.

Head Protection Too

The lamps adopted by the Maritime Administration are worn on laminated plastic caps developed for miners. These caps protect the workers from falling objects and head bumps, ever-present hazards in shipyards and on machinery maintenance projects.

Built to withstand rugged use in underground coal mines, the lamps are reported to be highly satisfactory from a service standpoint in the reserve fleet preservation program. Working conditions in connection with ship preservation give the lamps a severe test. However, the four steel-sheathed cells of the nickel-iron-alkaline battery are enclosed in a tough nylon plastic case molded in one piece and resistant to the abrasion, corrosion, oil, grease and moisture encountered in ship maintenance work. The battery is magnetically locked in the spill-proof case.

The lamps burn continuously for a minimum of 10 hours on one battery charging. A self-service battery-charging rack has been installed at each reserve fleet installation so workmen, when they come off duty, can insert the batteries in individual slots for charging, which is automatic and takes place during non-work hours.

The lamp bulb in the headpiece is filled with Krypton gas and has two filaments of equal candle power. If one burns out the other remains operative. Should the lamp lens and the bulb both be broken, the bulb case automatically moves away from contact points. This interrupts the circuit and cools the filaments so they cannot ignite flammable gases that may be in the atmosphere.

Both the headpiece and the battery are of well balanced design so they can be worn for long periods without causing discomfort. The battery is carried on a canvas belt and a single cord runs to the headpiece allowing freedom of movement for the workmen.

Pictures by courtesy of Mine Safety Appliances Co.

First Air Force Holds Safety Seminar

EMPHASIZING the need of reducing preventable accidents throughout all its installations, the First Air Force conducted a ground safety seminar recently at Mitchel Air Force Base, L. I., featured by demonstrations and talks by civilian and military authorities in the field of safety engineering.

Officers, airmen and civilians assigned to ground safety and transportation duties with First Air Force units throughout a 15-state area in the Northeast and the District of Columbia attended the seminar, and also ground safety representatives from the Continental Air Command, Eastern Air Defense Force, the First Army and the Third Naval District.

Ground safety officers pointed out that constant application of safety rules is required if Air Force installations are to reduce the number of lost-time ground accidents. Total cost to the Air Force of accidents causing injury in First Air Force installations during 1950 was $244,236, they reported.

On completion of the four-day seminar, personnel were issued certificates stating they have taken 30 hours of instruction in safety engineering.

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Safety Maintenance & Production

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Preventive Maintenance

TAKING issue with a definition of the National Production Authority that "neither maintenance nor repair includes the improvement of" a piece of equipment, J. B. Whitlock, general maintenance engineer of Armco Steel Corporation, Middletown, Ohio, said at the General Meeting of American Iron and Steel Institute in the Waldorf-Astoria Hotel, New York, that a progressive maintenance group must continually seek ways of making improvements.

If the NPA definitions were followed literally, the speaker said, "no improvement would ever be made in the failure experience of a piece of equipment. Continual breakdowns of the same piece of equipment would also use more material in replacement than an improved material application would use by eliminating future failures."

The day of breakdown maintenance is now long passed, Mr. Whitlock explained, as this type of fire fighting does not meet the demands of mechanized industry. Greater emphasis is placed on preventive maintenance. For the latter purpose, trained men have schedules of inspection. After an inspection and a recommendation for maintenance, a repair period is discussed with the operating supervisor.

"Failure research" is an important part of maintenance, continued Mr. Whitlock. The investigation of why a piece of equipment failed and what can be done to prevent similar failures, may lead to design investigation, material study and other problems, and may involve calling in the general engineering department.

Ten years of experience with this plan in his company, said Mr. Whitlock, has led to many problem solutions, and much valuable information from it has been catalogued in a manual.

Extensive training courses for employees are a part of the author's preventive maintenance system.

Smoke Eater's Manual

A CIVIL defense edition of a training manual for fire fighters has just been released by the National Fire Protection Association. This 176-page edition, *Handling Hose and Ladders,* contains over 300 photographs and brings to the fire service in one volume a step-by-step pictorial description of accepted practices for handling fire hose and fire department ladders.

The sequences were photographed under the direction of the Joint Committee on Evolutions representing the Firemen's Training Committee of the National Fire Protection Association; the Fire Department Instructors Conference; and the International Association of Fire Chiefs. The manual combines in handy pocket-size form all the material except pompier or scaling ladder evolutions from the two volumes, "Handling Hose" and "Handling Ladders." Address: National Fire Protection Assn., Publications Service Dept., 60 Batterymarch St., Boston 10, Mass. $1.50 per copy. Discounts for quantity.

Fire Protection Engineers

PURPOSE of the newly-established Society of Fire Protection Engineers was outlined at the first annual meeting, held in Detroit, by John J. Ahern, director of fire protection and safety engineering at Illinois Institute of Technology and first president of the Society.

"The objectives of the Society are to promote the art and science of fire protection and safety engineering and its allied fields, to achieve and maintain a high professional standing among its members, and to foster fire protection engineering education," Ahern said.

The Society was formed October 30, 1950, as a professional engineering organization after two and one half years study by the board of directors of the National Fire Protection Association.

"The board saw a need for a program to speak for fire protection engineers, particularly in the problems involved in their registration as professional engineers.

"It was found that a bonafide professional society was needed to establish standards for fire protection engineers to make it possible for them to take their place with other professional engineering groups."

Qualifications for membership and organizational structure parallel those of the American Society of Mechanical Engineers and the American Society of Civil Engineers.

Civil Defense Manuals for Three Types of Buildings

THREE Civil Defense Manuals, designed to provide for the safety of the millions of New York City's residential and working population, have been compiled and are being distributed to property owners and management firms throughout the city by the Commerce and Industry Association of New York, Inc., it was announced by Edmund F. Wagner, Chairman of the Association's Property Owners Committee and president of General Realty & Utilities Corporation.

The Manuals, which outline procedure for setting up effective control organizations in Apartment Buildings, Office Buildings, and Industrial and Loft Buildings, respectively, were completed after months of study by a special Committee on Civil Defense, composed of the city's top realty management executives, with Diedrich F. Lehnert, Vice-President of Albert B. Ashforth, Inc., as Chairman.

The basic organizational setup proposed is the same for all buildings but, because functions and problems varied with the classification and type of occupation, the committee made its study in three

parts, with the Office Building Panel directed by Edmund J. Bray, of International Business Machines Corp., as chairman; the Apartment House Panel headed by Edgar I. Levy, of E. A. Levy Management Corp., and the Industrial and Loft Building Panel under the chairmanship of Chester R. Sours, of Brown, Harris, Stevens, Inc.

The City's Office of Civil Defense and various municipal departments cooperated with the Association's special committee in preparation of the manuals, which have been officially approved by Civil Defense Director Arthur W. Wallander.

Principal recommendations prescribe duties and responsibilities of designated building personnel such as Control Director, Deputy Control Director, Floor Wardens, Stair Wardens, Shelter Wardens, First-Aid Workers, Rescue Squad, Fire Brigade, Fire Watchers, Maintenance Squad and Messengers. Facilities for use of the Building Control Unit include Control Room, Alarm System, Shelter Areas and Signs, First-Aid Stations, Fire-Fighting Equipment, Auxiliary Lighting, Panic Control and Accommodations for people coming from the street.

Included also in the manuals are instructions on the types of signs to be used to indicate routes to shelters and shelter zones, and their location; check list of fire-fighting and rescue equipment recommended; basic fire-fighting principles; subjects for consideration in training of rescue teams; schedule of items for first-aid use and for kits.

A listing of emergency telephone numbers, with space provided for similar listings of local area numbers, is intended to be removed and posted in a building control room. Also provided are forms of suggested letters to tenants soliciting emergency personnel and advising them of the action they are to take in an emergency.

In a foreword addressed to the Real Estate Industry of New York City, Mr. Wagner pointed out that "as the industry which provides shelter for millions of New York City's residential and working population, we must assume a share of the responsibility for organizing those millions to be mutually helpful in case of enemy attack." It was in recognition of this, he stated, that the Property Owners Bureau of the Commerce and Industry Association sponsored a Special Committee on Civil Defense which, as its first task, prepared the three manuals.

Copies of the manuals can be obtained from the Property Owners Bureau of the Commerce and Industry Association, 233 Broadway. To cover the cost of printing and handling, a charge of 15 cents each and $12.00 per hundred or more (plus City Sales Tax) is being made to non-members; Association members can get them for 12 cents each and $9.75 per hundred or more (plus City Sales Tax).

BE FRESH...
STAY FRESH
wear a
DUPOR No. 1
miniature NOSE MASK for
Dust, Fumes, Paint Spray
Has 9 sq. in. filter. Mask is of soft rubber equipped with nose wire that's adjustable to any shape nose. Exhalation valve exhausts breathed air and keeps out unfiltered air. Handy as a pair of glasses. Complete panorama vision, no blind spots. Does not interfere with talking, eating, smoking. Fits the vest pocket. Weighs 1 oz.
Sample sent $1.10 pp
For the best in eye protection get H. S. Cover's Gas-Tight, Fog-Proof Goggles.. $1.85pp
H. S. COVER, South Bend, Ind.
Please use a 1c-13 on prepaid card for details.

There's a *Big* difference between Asbestos Gloves and you can *tell* the difference when you get Industrial's 200-14L asbestos gloves. *The quality stands out in* your hands and *on* your hands. Seamless one piece construction from tip to top. No seams at the wrist or working edges to pull out or burn out just when protection is needed most on a hot job. The 200-14L has a knitted cotton lining (not woven) anchored in each finger and in thumb. *The quality stands out* in the correct design and proportions of the big roomy pattern that allow a cool, comfortable fit. They are double sewn. Standard 11, 14 and 23 inch lengths. Other lengths and many special types of asbestos gloves and mittens are available both lined and unlined. The quality of all these items stands out because they are all made of sturdy, close woven 2½ pound per square yard Underwriters grade Asbestos cloth . . . from the best mills in the United States.

Be safe—use Industrial's Safety Apparel backed by 41 years of experience and know-how that means dependable low cost protection for rough, tough service.

We are designers and manufacturers of a complete line of Industrial Safety Apparel. Write for catalog and tell us your requirements.

Industrial
GLOVES COMPANY
A CORPORATION
Main Factory: 1769 Garfield St., DANVILLE, ILLINOIS
(In Canada: SAFETY SUPPLY CO., Toronto)

Please use a G-14 on prepaid card.

Unlabeled Extinguishers May Be Hazardous

FOLLOWING World War II a considerable variety of war surplus carbon dioxide containers were offered for sale to the public as fire extinguishers. To a large extent these devices were not originally designed as extinguishers, but intended for inflating life rafts, vests, or tires, for emergency pressurizing of hydraulic systems and the like. A number of accidents, some of serious nature attending the use of these devices as fire extinguishers are reported, according to a recent bulletin of the National Board of Fire Underwriters. Carbon dioxide extinguishing systems especially designed for aircraft, tanks, boats, etc., may not be suited for other than the exact use for which they were originally intended.

Carbon dioxide, a valve, a cylinder and improvised parts do not make a safe and effective fire extinguisher. On the contrary they may make a very dangerous article unless they, with special nozzles and other appurtenances, are engineered, designed and assembled into a safe and effective unit by people skilled in the art.

It is evident that although some war surplus extinguishers may be applicable and safe, even these deserve to be considered with a great deal of skepticism in view of their age and special construction and the lack of the label of Underwriters' Laboratories, Inc. Converted extinguishers unless altered by reputable and known manufacturers of extinguishers and bearing the UL label should not be considered.

The following letter received from a volunteer fire department is especially appropriate in this connection:—

"About two weeks ago I sent a night letter requesting information about the ——— fire extinguisher. You wired me that the underwriters were uninformed about them but to scrutinize them carefully.

"We arranged another meeting with the sales promotion man before we undertook the job of selling them to the townspeople. I thought you might be interested in the demonstration we demanded him to give us.

"In a 14-qt. water pail we put a small quantity of gasoline, set the pail on the meeting room floor of the firehouse and ignited the gas. He used one of the large size and extinguished the fire in the pail several times. It contained CO_2 all right.

"One of the firemen contended we would sell more of the small size extinguishers so one of them was tried on the pail of gasoline. The small size was apparently filled with oxygen under terrific pressure —no carbon dioxide was visible. It turned that lazy yellow flame in the pail into a white sheet of flame that reached nearly to the ceiling. The salesman was burned so badly the boys administered first aid from equipment on our service truck.

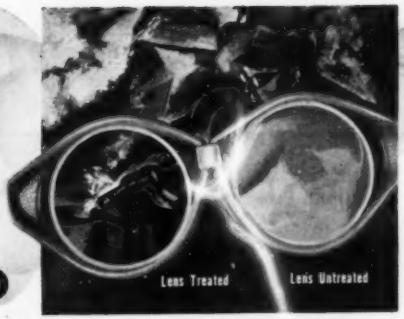
"The salesman was so sure of his product he repeated the performance with another of the small type (this was from another lot the company had sent for us to use as samples). The result was the same violent flame as before and he used up two more of the large ones trying to put out the blazing gasoline. We put it out with a large CO_2 from the fire truck.

"We certainly had an eye-opener. It would have been suicide to have the fire department sponsor such a product. There are, however, several towns not far from here whose firemen have sold into the hundreds of these extinguishers to their citizens. If one were used on a flooded oil burner the results would be disastrous."

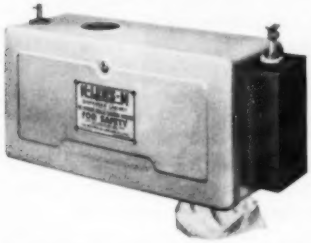
It should be noted that even though an "extinguisher" contains CO_2 the nozzle shape and arrangement may be such that the gas will issue in a high velocity jet blasting the flammable liquid into the air in a finely divided state where it will burn fiercely. This is one of the many features carefully checked by Underwriters' Laboratories, Inc., before listing.

K-LENS-M
REG. U.S. PAT. OFF.

Anti-Fogging LIQUID



Stops fogging and steaming of eyeglasses and goggles—glass or plastic.
Easily applied, K-LENS-M Anti-Fogging Liquid forms an invisible coating that resists formation of fog or moisture on lens surfaces . . . brings clear vision to eyeglass wearers under severe conditions of hot steaming vapors, freezing temperatures, humid summer heat, or body perspiration . . . overcomes hazards of fogged goggles . . . increases worker efficiency and safety.



ANTI-FOGGING STATION
(Attaches Securely to Cabinet)

FINGERTIP SPRAY PUMP
(No Air Pressure Needed)

EASILY INSTALLED—SERVICED
(Locked In by Cabinet Door)

Make your own test—
Order a sample bottle of K-LENS-M Anti-Fogging Liquid complete with spray pump, $2.00 postpaid.

Manufacturers of
K-LENS-M
Liquid Lens Cleaner
Lint-Free Lens Tissues
Anti-Fogging Liquid
Dispenser Cabinets
Anti-Fogging Station

THE WILKINS CO.
INCORPORATED
CORTLAND 2, N. Y.

Please use a G-15 on prepaid card for details.

Non-Explosive Coal Mining Development

THE development of a non-explosive, chemico-mechanical device which breaks coal from a mine face by the force of compressed gas generated by chemical reaction within the device and released mechanically has been announced by the Du Pont Company.

The new device consists of a steel tube enclosing a chemical unit. The tube is closed at one end by a plug having electrical connections, and at the other end by a rupturable disc held in place by a perforated head. After the tube is placed in a hole drilled in the coal face, the chemical reaction is activated by an electrical current controlled within narrow limits. Heat is produced which after a few seconds destroys the starter wire, thus breaking the electrical circuit. The chemical reaction thereafter continues to liberate gas which builds up to a predetermined pressure, at which point the disc ruptures. The gases rush out through the ports in the head and break down the coal. The tube, refilled in the mine with another chemical unit and disc, is used repeatedly.

The device produces no flame. It cannot be activated by small electrical currents, such as stray currents, nor by high currents such as mine lighting or haulage circuits. The units cannot be detonated by blasting caps or high strength dynamite.

It is the result of years of research by Du Pont scientists in the field of chemical kinetics. At the present time this new product is in the transition stage from the laboratory to extensive field testing. Field tests to date have been successful. It has produced a maximum of coarse coal with a maximum safety and with a high degree of overall efficiency. This new development, the company said, is considered the most important for breaking down coal since the introduction of permissible explosives early in the century.

Industrial Tape

(From page 16) medical treatment room allays uneasiness by its spotless appearance and the genuinely helpful attitude of the plant nurse whose efforts, Mr. Parent explained, has saved countless hours of suffering as well as dollars and cents.

It is small wonder that the plant is justifiably proud of the Certificate awarded by the American College of Surgeons to Industrial Tape Corporation for "complying with standards for medical service in industry."

However, perhaps the greatest single source of pride to Mr. Parent is the fact that he cannot walk ten feet without hearing an affectionate "Hi, Lou" in tones mingling admiration, respect and praise for a job well done.

TRANSPORTATION

Brake Service Manual

A NEW brake service manual has been made available by the automotive division of the Warner Electric Brake & Clutch Company, Beloit, Wisconsin, it has been announced by George McManis, automotive sales manager.

The new booklet provides complete instructions for installation, servicing and trouble-shooting on all Warner electric brakes for commercial and coach trailers. All of the instructional material has been simplified and is arranged so that even inexperienced service personnel will find it easy to understand.

The new service manual, No. 547 E, is available through Warner distributors, dealers, or by writing to the Warner Electric Brake & Clutch Company, Beloit, Wisconsin.

New PM Program

A NEW preventive maintenance program designed to help truck operators gain greater economy and efficiency in the emergency period ahead was announced by A. A. Shantz, General Parts and Service Manager for the GMC Truck & Coach Division.

GMC Truck, which originated preventive maintenance for trucks in 1928, put together the new, simplified system after a two-year nationwide survey of company service and retail personnel and dealer service managers to find out exactly what truck owners needed maintenancewise, Shantz said.

Factory instructors will explain the new program to company field service personnel in a series of 25 meetings across the country, and the GMC service experts will, in turn, present it to the dealers.

Shantz stressed the importance of a PM system to operators in both a peacetime and defense economy, pointing out that in the current period of material shortages, greater effort must be made toward keeping equipment operating without breakdowns and costly road delays.

The new system has extreme flexibility in order to cover the many types of trucking operations, and has been simplified over the former PM procedure so that it ties in closely with modern equipment and trucking methods.

Whereas the previous system had five different services to cover all operations, the new program has an "A" service for gasoline-powered vehicles that have been driven either three to six weeks or 1,000 to 3,000 miles (depending on the type of operation), and a "B" service for trucks driven either three to six months or from 10,000 to 20,000 miles. For Diesel trucks, the two services are placed in effect after somewhat longer periods of operation.

Vehicle time in the shop has been reduced by the new system although more service work is performed at each interval. This was accomplished by lengthening the service intervals in accordance with improved truck engineering.

All maintenance work done is recorded on a single sheet, which shows at a glance what past experience has been on any particular truck. This has been found to be an excellent check in locating driver deficiencies.

One of the most important benefits in the PM program, Shantz said, was the accurate scheduling of maintenance work, thus avoiding the overcrowding of maintenance facilities. Other proven benefits include lower cost per mile of maintenance, reduction in road delays, better-looking, more efficient equipment, and more accurate forecasting of truck operating expenses.

The PM slogan of GMC is "Get more RUN for your money," and the program has been shaped up to accomplish that end.

Maintenance costs in some fleets that have used the GMC PM program in the past have been cut as much as 50 per cent, according to recent surveys.

For operators who have only one or two trucks, or a small fleet, and want their maintenance done by a GMC dealer, there is a new PM agreement form concerning the frequency of the work to be done by the dealer, costs and other items. Under this agreement, the dealer does the work and keeps the PM records, letting the owner know when some special work is required.

Used truck purchasers were urged by Shantz to adopt the PM program immediately after buying used equipment, using the "B" service sheet to locate deficiencies and get the truck in shape.

New Truck Film

A NEW motion picture portraying the attitudes, skill and knowledge required for safe, efficient operation of commercial motor vehicles, has been released by the Automobile Manufacturers Association.

Entitled, "A Professional Portrait," the film tells the story of driver training in the trucking industry and aims to promote better driving habits. The 22-minute public service film is endorsed by leading highway transportation organizations. Prints can be obtained for showings without charge through the National Highway Users Conference, 952 National Press Building, Washington 4, D. C., and the American Trucking Associations, 1424 Sixteenth St., N.W., Washington 6, D. C.

Each accident reported to the agency is judged impartially by the Accident Board in order to determine the cause and whether or not the accident was preventable.

Planned Program for Safe Driving

THE motor truck is destined to play a role of ever-increasing importance in the present national emergency. Hence, the problem of accidents involving injuries to trained drivers, damage to equipment, damage to valuable cargo becomes more vital than ever. C. E. Preslan & Co., Inc., specialists in motor transportation insurance, have felt that insurance against traffic accidents should go beyond the claims and adjustment phase of the coverage extended to the truck operator. They have developed a program of accident prevention designed to supplement the activity of the truck operator.

This program has been developed with full realization that the responsibility for maintaining such a program lies wholly with the truck operator. The program is also premised on the belief that the operator with only ten trucks needs a program embodying all of the fundamentals just as much as the operator of one hundred trucks and, that, due to the cost of such a program, the small operator is less likely to adopt such a program on his own initiative.

The shortage of trained personnel to conduct such a program for the truck operator is also a significant factor. Personnel experienced in setting up and conducting an effective fleet program are difficult to find.

The program has been very carefully designed to combat effectively just one thing: Elimination of the primary causes of accidents. Each accident therefore becomes a part of a comprehensive cause analysis. This analysis shows that the three primary causes of accidents are:

Too fast for conditions	20.4%
Following too closely	16.1%
Unsafe backing	22.9%
	59.4%

With full realization that such an analysis is worth little unless the information furnished is used as the foundation of future accident prevention activities, the entire program is geared to combat the primary causes. Furthermore,

since no driver wants to be involved in an accident, the program becomes one directed to correct the unsafe habits of the drivers and to attempt to develop the proper attitudes.

The first step is a well planned drivers meeting of the conference type, where the primary causes are discussed fully. A magnetic board with miniature vehicles is used to show:

Why speed, too fast for existing road and traffic conditions, is the cause of many accidents.

Why following too closely and attempting to pass from this position is unsafe and a prime cause of trouble.

Safe procedures for right and left turn and backing.

Each driver is asked to tell how many feet he needs to make an emergency stop, on a dry road with good brakes, to avoid hitting a pedestrian. The answers vary from 8 feet to 500 feet, with over 80% of the drivers asked unable to stop within the distance they give as an answer.

The electric detonator is then used as a demonstration of the distance actually needed for such a stop, with the drivers who give the lowest answers doing the driving. Drivers are almost always sincere in believing they can make this emergency stop at 30 MPH within the distance they give on their answers. They will wager any amount that they can do it.

They are confounded when they discover the 85 to 90 feet needed to make this stop on a dry road. They begin to realize that it takes time to think, react and brake a vehicle to an emergency stop, and, much more time and space than they had realized.

The importance of good vision is also discussed and each driver is given a thorough eye examination on visual acuity test instruments. A very large percent are found to have visual deficiencies that could easily be the cause of eye strain, fatigue, headaches, lack of judgment of distances and speeds of other vehicles, and, color blindness. Those who have these deficiencies are referred to an eye specialist for further examination and corrective action. A careful follow-up is made on all cases so referred to determine the effectiveness of this phase of the program.

These meetings are designed to put the driver at his ease. Thinking and discussion is calm and quiet. No driver is criticized for past accidents or attitude. No discussion is ever allowed to get out of order, even though arguments do develop. Drivers readily admit that this type of meeting is extremely worthwhile and educational to them.

Road Check

The road patrol is the next step in the program, and again it is geared to detect the unsafe driver habits that contribute to the primary causes.

Patrol cars operated by trained engineers are sent to those areas where the highest frequency of accidents is indicated on a spot map that is kept up to date.

Observation reports, indicating violations on the driver's part, are forwarded immediately to management. Stress is again placed on:

TOO FAST FOR CONDITIONS
and
FOLLOWING TOO CLOSELY

plus, unauthorized passengers, cutting in and out, unsafe passing, etc. The patrol cars in addition are equipped with emergency fire extinguishment equipment, first aid kits, flares and fusees, etc. Any driver, commercial or otherwise, who is in difficulty is given assistance by the engineer whenever or wherever possible. In addition, the engineers assist at the scene of an accident in any possible manner.

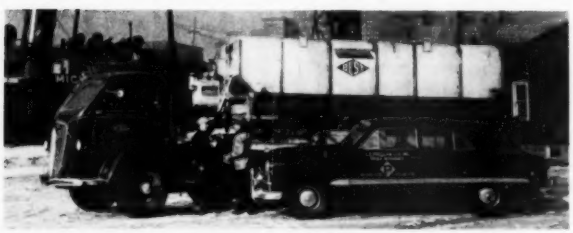
In addition to detecting and informing management of the unsafe driving habits of a driver, the operation of patrol cars has a definite stabilizing effect on drivers who are inclined to break the safe driving rules when away from the immediate supervision of his employer.

Disciplinary action is left entirely to the truck operator with no recommendations on what form it will take. The reasoning behind this is obvious, since such corrective action must, to be effective, be on a case basis.

A regular schedule of terminal inspections is maintained with particular attention paid to fire hazards, and the type of emergency fire fighting equipment available.

The inspection of all equipment is also an important feature of the overall program. These inspections are made both on the road and in terminals, with repair orders issued if needed. Special attention is paid to flares, flags, fusees, etc. A repair order signifies that the equipment must be grounded until the signed repair order is returned, indicating that repairs have been made.

Drivers Safety Letters, Payroll Inserts, etc., are issued as a means



Six patrol cars clearly marked with "Safety Patrol" in front and back are on the road. Each car is equipped with a 35 mm candid camera to take pictures of actual driver performance and also a device which records on graphs the actual clocking of speed, time and mileage. Studies indicate that the presence of these cars on the road is exerting a definite influence on the behavior of drivers. Cars also carry fire fighting, first aid and emergency lighting safety equipment.

of keeping the program constantly in the minds of the drivers.

To select the right kind of a man for the job, Personnel Tests, I.Q., Traffic & Driving Knowledge test, etc., aid in finding stable, satisfied drivers and lower driver turnover for the operator. Road tests are then given to carry out the Driving Knowledge test.

One of the most important steps in the program is the Safe Driver Award System, in which recognition is given to the drivers for a job well done. The impartial judgment of a board of four men examines and passes sentence upon every accident reported. Records of whether it was "preventable" or not, are kept on an up-to-date card for each driver. Safety Awards are an important factor in making a driver use his knowledge of safety in actual performance, for the recognition given for his efforts adds to his pride in having done a good job.

Pictures by courtesy of C. E. Preslan & Co., Inc.

Sinclair Plans

(From page 24) emphasis is placed on decentralization of safety activities. It is the organization's purpose to make *every man a safety man.*

The safety program is administered through the personnel office, but each department is responsible for its own safety rules. Safety posters appropriate for the hazards encountered in each area are displayed and are changed every week. The plant's safety council meets regularly and its membership is changed each month to give the over-all program as broad a base as possible among the employees.

First aid training is based on the Bureau of Mines system and there is now at least one trained first aider holding a certificate in every area during every shift. The plant has a well equipped first aid room, with a nurse on duty for the day shift.

In carrying out the decentralized safety theme, each foreman is responsible for the wearing of safety clothing and equipment in his section. New employees receive safety education in small groups, generally alone, and the purpose and uses of safety equipment are carefully explained. Safety shoes and goggles are made available to employees at below cost to encourage their use.

The company provides the necessary masks, respirators and self-contained breathing apparatus. These are required for much of the maintenance and repair of equipment and also for the handling of products of unknown toxicity.

The thoroughness of the safety pre-planning is evident throughout the laboratories. There are emergency showers in many of the corridors so that anyone who has been splashed with acid or a harmful chemical can be deluged with water. Even the floor under the shower is of a different color to

SAFE STORAGE FOR EXCELSIOR

AND OTHER FLAMMABLE MATERIALS

PREVENTS COSTLY FIRES!

- **Meets State & Municipal Fire Regulations**
- **Keeps insurance rates down**
- **Offers safe storage space for flammables**

Reduce the menace of fire by storing highly flammable materials in the fireproof SAFEWAY EXCELSIOR BIN. Bins are made of heavy galvanized iron. Snug cover stays open when in use, leaving hands free to work inside bin. Construction of bins prevents air seepage. Fusible link causes cover to close in case of fire. Indispensable for shipping and receiving rooms, stockrooms, basements, etc.

ANOTHER SAFETY FIRST

FOR STORAGE AND PROPER HANDLING OF FLAMMABLE AND EXPLOSIVE MATERIALS.

"SAFEWAY SAFETY CANS

are approved, inspected and individually numbered and labeled by Underwriters Laboratories, Inc. For safe handling of explosives and flammable materials."

1–2–3 and 5 gal. sizes to fit your needs.

Write for Further Information

J. D. POLIS MFG. CO.

Dept. SMP, 3439 W. Ogden Ave., Chicago 23, Ill.

Please use a G-16 on prepaid card for details.

DON'T SAY "GOGGLES" SAY "EYEGARDS"

AND GET MORE PROTECTION FOR LESS MONEY

THE ORIGINAL CHAMPION

EYEGARDS

WITH 10-WAY VENTILATION

BEST THING NEXT TO YOUR EYES

Giving your men the finest in eye protection doesn't mean you have to pay premium prices. Get Eyegard goggles and save the difference! They're the goggles that provide greater comfort because the lightweight plastic frame is molded to form-fit the face . . . greater protection because the goggles are impact-resisting . . . greater ventilation through three large vents at side of cup and seven additional vents around the lenses. Cool and fog-free. With all their exclusive features, they cost no more than ordinary goggles. Get Eyegard "Champions" on next order.

No. 31 Grinders and Chippers Goggles

No. 335 Welders Coverspec Goggles

Write for free catalog.

AMERICAN INDUSTRIAL SAFETY EQUIPMENT CO.

3505 Lakeside Avenue Cleveland 14, Ohio

DIVISION OF THE BURDETT OXYGEN COMPANY • CLEVELAND, OHIO

Please use a G-17 on prepaid card.

YOUR EMPLOYEES NEED SALT

TO COMBAT HEAT FATIGUE

FURNISH THEM

PEP-UP

ENTERIC COATED SALT TABLETS

- PEP-UP are the original patented ENTERIC COATED salt tablets.
- Will not cause nausea or salt sickness.
- Coating is moisture proof and will not attract rodents or bugs. Can be stored for long periods safely.
- Meet government specifications for Type III Class B Enteric coated salt tablets.

EXPENDABLE DISPENSERS—PEP-UP TABLETS come to you in sanitary factory sealed dispensers at no extra cost. Throw away dispensers when empty—Hang up a new one. Save the cost of purchasing, cleaning and refilling dispensers.

UNITED STATES SAFETY SERVICE CO.

KANSAS CITY 8, MO. • BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

In Canada — PARMELEE LTD. — Toronto

Please use a G-18 on prepaid card.

make it easier for anyone partially blinded to find the shower.

The interiors have been painted in restful greens and yellows to prevent eye fatigue. In the machine shop, depth perception has been increased by painting control levers and vital parts with colors that contrast with the rest of the machine.

The laboratories' safety program is always looking for new ways to isolate and minimize the hazard. Recently, a pipe identification color code, based on the recommendations of the American Standards Association, has been used in one area, and it is expected that the measure will be expanded throughout the plant. This color code system makes it possible for employees to know immediately what type of material is being carried by the various pipes.

The plant is attractively lighted by fluorescent lamps set in acoustic ceilings. In hazardous areas, explosion proof lighting units are used.

In spite of the hazardous operations undertaken in the laboratories, the forethought in the plant's design and equipment, the isolation of hazards and the decentralization of the safety program to make all the personnel alert to accident possibilities have given the plant a record of no lost-time accidents for the past two years. The Sinclair Research Laboratories are well aware of the great contribution accident prevention can make to the industrial scheme. Their own unique "Sinclair Plan" should similarly make this country a better place in which to live and work.

Pictures by courtesy of Sinclair Research Laboratories, Inc.

Possible Uses for Fission Products

NEW, constructive, industrial uses for by-products of the atomic energy program, through the medium of large-scale employment of fission products, are being investigated by the Stanford Research Institute for the U. S. Atomic Energy Commission.

The immediate objectives of the study are to acquaint industrial concerns with the characteristics of fission products and to obtain the cooperation of industry in developing estimates of their possible utilization.

The atomic by-products known as "fission products" are a highly-radioactive mixture of elements produced by the fission or splitting of uranium during the plutonium production process in nuclear reactors. These radioactive atoms have no usefulness for industrial or explosive power but only for the energetic radiations which they emit. Large quantities of fission products left over from plutonium processing are now stored in a mixture with contaminants in underground tanks at the Hanford, Washington works.

The scope and objectives of the Stanford Research Institute's fact-finding program are described in detail in a new descriptive booklet

entitled, "Industrial Utilization of Fission Products—A Prospectus for Management." The Institute will distribute the prospectus as part of its current study of the possible market for fission products. The booklet will go to a representative sample of U. S. industry. Dr. J. E. Hobson, director, has announced that the Institute will also have a limited supply of copies available for other interested concerns. They may be obtained by writing to: Project 361, Department of Business and Industrial Economics, Stanford Research Institute, Stanford, California.

The properties, availability, cost and possible uses of fission products are the principal subjects covered by the prospectus. In addition, consideration is give to some anticipated problems such as those connected with health and safety, handling and shipping, patent and process protection and disposal of radioactive wastes.

As a result of this study, industry may be offered an opportunity to tap large-scale, low cost sources of radioactivity. The cost should be substantially lower per unit of radioactivity than presently available sources. For example, the cost per curie of fission products in large quantities is estimated to be in the range of 1/100 to 1/1000 of the price of most presently available radioactive materials.

Suggested Uses

The prospectus points out five of the principal capabilities of fission product materials that might be of interest to industry: the ability to kill organisms, induce chemical reactions, ionize gases, activate phosphors and produce rays which can penetrate solids.

The booklet also lists some of the uses these properties suggest, including the sterilization of foods and drugs in containers without heat, production of new or cheaper chemicals, production of improved static eliminators and fluorescent lights, production of new types of luminescent paints and tiles, tracing of pipeline flows and radiography. Some of these uses are speculative, and others have already been technologically developed through the use of other forms of radioactivity.

"It is not expected that large, ready-made markets for these products will be found," the prospectus says. "Rather, the objective is to uncover potential large-scale uses that may be developed with minimum cost and difficulty."

New Owners for Safe-Line Clamps

THE Lamson & Sessions Co. of Cleveland, according to its president, George Case, Jr., has purchased the business and facilities of the National Safe-Line Clamp Co. of Michigan. Under its new ownership, the company will continue to make alloy-steel clamps for wire rope.

PUTTING dust ON THE LINE WITH TORIT DUST COLLECTORS

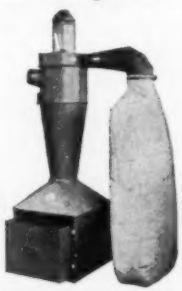
In this line up there are six small wheels and disks, all connected to one Model 84 Torit Dust Collector. These are being used to finish small wooden parts, but the set up is equally applicable to metal, plastics, or other materials.

This installation well illustrates the adaptability of Torit Dust Collectors to production line operations. Pipes, collecting hoods, and even the dust collector are located so they do not cut off light or interfere with the work. Efficiency, too, is high.

There is a Torit Dust Collector for your dust collecting job. You'll find it economical to install and exceptionally low in operating and maintenance costs. For details, and latest Torit catalog, write:

TORIT Manufacturing Co.
304 Walnut Street St. Paul 2, Minn.

TORIT F B Type Dust Separator



Torit also manufactures a line of cyclone type dust separators. These can be ordered with an after-filter, as shown above, which permits recirculating the cleaned air within the plant.

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SAFER LONGER...

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American Box Wins Safety Award

SAFEST woodworking plant in Ohio, was the honor bestowed on The American Box Co. of Cleveland as a feature of the 20th Annual Greater Cleveland Industrial Safety Campaign, it was announced recently by George H. Kubes, company president. "We lost no manhours due to injuries during the entire year," he stated.

The Safety Award, a yearly citation approved by the Industrial Commission of Ohio, at Columbus, was presented to representatives of American Box; Henry S. Kubes, Vice President, and Edward A. Kubes, Production Superintendent.

The Cleveland firm is one of the nation's "big 5" manufacturers of wirebound crates, wood cleated panel boxes and nailed wood boxes.

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The Future Shows

York Harbor, Me.

September 6–7. Twenty-fourth Annual Maine State Safety Conference & Exhibit. (Marshall House). Arthur F. Minchin, secretary, Maine Safety Conference, Dept. of Labor & Industry, State House, Augusta, Me.

Cleveland, Ohio

September 18–20. Ohio State Safety Conference (Hotel Carter). Carl L. Smith, executive vice-president, Ohio State Safety Council, 2073 E. 9th St., Cleveland 15, Ohio.

Houston, Texas

September 27–29. Fourth Annual Gulf Coast Regional Conference on Industrial Health (Rice Hotel). David M. Wood, conference chairman, Houston Chamber of Commerce, P. O. Box 2371, Houston 1, Texas.

Chicago, Ill.

October 8–12. Thirty-ninth Annual National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, gen. sec., National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

San Francisco, Calif.

October 29–November 2. Seventy-ninth Annual Meeting American Public Health Association. (Civic Auditorium) Dr. R. M. Atwater, executive secretary, American Public Health Assoc., 1790 Broadway, New York 19, N. Y.

Midwest Safety Show

(From page 13) never thought a guard was needed here, but now it is easy to see how a simple barrier

between his hand and the pinch point would have saved his fingers, according to H. L. Smith, Safety Engineer, General Electric Co., Fort Wayne Works, who spoke on "Slugging it out with Old Man Accident."

"We have learned the hard way, and before our emotions cool after an accident, we get a program underway to guard every similar press. We guard presses to help the careful operator work safely. The man who is not injured is not classed as a careless or reckless worker. Factory workers like all Americans, I believe, are the most careful people on earth. Yet, as a nation, annual statistics show us as having the most violent deaths of any country—or nearly so. The trouble is our hazards greatly exceed our carefulness and safety guards," Mr. Smith stated.

Who's Responsible

Responsibility for safety was discussed by William Miller, Industrial Relations Director for Stewart-Warner, Chicago, who stated that it is safe to assume that some responsibility for safety has been placed on the industrial relations departments of most large organizations. "What is this responsibility?", the speaker asked.

"First, there is the development of the program. The planning of what should be done and how it should be done.

"Second, there is the administration of the program.

The Safety Director or Personnel Director is the specialist who should keep up to date on the latest and best techniques in the safety field.

Does this mean that the line organization, the production departments, have no responsibility in this field? Absolutely not. They carry a heavy responsibility also.

Thus both the line organization and the Industrial Relations Department have a responsibility insofar as the planning of the safety program is concerned, with the primary responsibility being placed on the Industrial Relations Department.

The line organization, the foreman in the department, is primarily responsible for carrying out any safety program. He must make sure that his employees are safe, just as much as he makes sure that they are productive and that the quality of their work is up to standards.

The major job of the Industrial Relations Department in the safety field is selling safety. First to the overall boss—the executive head of the plant. This is the easiest sale of all for no one wants "blood-money." The next job is to sell line supervision—the foreman who in turn must sell the employee. If you make the sale your program will flow smoothly. If you don't, you may have troubles ranging from a lack of cooperation to slowdowns and strikes.

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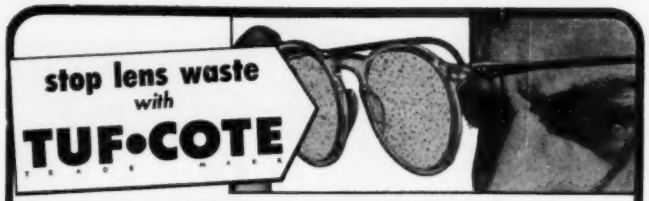

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of utilizing the union. The union can assist you immeasurably in education of your employees and in other matters in your safety program.

Glass Eyes Have No Vision

Nationally known Dr. Hedwig S. Kuhn of Hammond, Indiana in an address on "Eliminating Everyday Eye Hazards" stressed the fact that over and over again we must repeat the truth that 90% of all industrial eye injuries are preventable. Also, employees must be told as often and as dramatically as possible that one can walk with a wooden leg, tie your shoelaces and drive a car with steel hooks for hands, eat with false teeth but NO ONE CAN SEE WITH A GLASS EYE!

Dr. Kuhn advocated the following basic elements necessary in any eye protection program in industry:

1) Survey to determine type of hazard and type of protective equipment suited to each job.

2) Set up policy (safety committee and professional consultants) and stick to it.

3) Organize servicing and maintenance for plano and prescription (no more toolcrib) individually owned glasses with provision for adjusting.

4) Use Government approved merchandise and Recommended Practices.

5) Avoid catalogue decision or yielding to sales pressure—cheaper per unit may be much more expensive in the end.

6) Substitute prescription safety glasses for fragile personal *glasses*. Even if job itself is not hazardous, bumping into hoists, doors, ladders can break glasses and produce a perforating injury.

7) If company and/or employee pays out money, especially for prescription safety eye wear, be sure worker *sees* and sees for his job.

8) That a professional consultant somewhere along the line be responsible and see that prescription eye wear is as ordered—for employee—and adjusted properly.

9) Tints—Don't hand out at request except for known jobs—welding and heat.

Advocate educational programs.

The Three C's

The three "C's" of safety are Comprehension, Contact and Control, according to D. A. Farrell, Supervisor of Safety, U. S. Steel Corp., Pittsburgh. The three "C's" were developed from an objective analysis of 2,000 heavy-industry accident reports. In the analysis these three factors—"caught between," "struck against" and "struck by"—appeared with startling frequency. Eventually they began to form a pattern. The study also disclosed that the only objects an employee could have contact with were solids, liquids or gases. The recognition of these limited possibilities of contact simplified the task of classifying accidents.

"The problem facing us in industry can be solved if our plans avoid

the maze of abstract thinking that has tended to inhibit our actions in the past. Psychological factors are of no significance in a case such as this. Proneness is not the answer. Accident proneness means that an individual is involved in a series of accidents. Waiting for such a series of accidents defeats our purpose of anticipating and controlling all possible injurious contacts. We believe that our next major gain toward the ultimate solution of the problem lies in the principles of the "Three 'C's' of Safety," Mr. Farrell predicted.

Anticipate Dangers

"Treat all materials in your plant as being potentially harmful until they have proven safe," warned W. F. Scholtz, Supervisor, Industrial Hygiene, Allis-Chalmers Mfg. Co. You may have someone in your plant who is qualified to evaluate their hazards and to assist in setting up safe job procedures for their use. If not, solicit the aid of your insurance company, your local or state health department, the U. S. Public Health Service, or any private organization in your locality qualified for the task.

"The Industrial Hygiene Unit of the Wisconsin State Board of Health has been found to be very helpful in carrying out our program and I am sure your State Board of Health can be as helpful to you. Last but not least, always remember, that after the hazards are found, surveyed, eliminated, or guarded against, constant checks on all new materials and processes must be maintained in order to keep harmful exposures at a minimum."

No Pig Pens

"We decided there wasn't any place for a 'Pig Pen' in a factory." So stated Stanley A. Wright, Safety & Housekeeping Dept., General Motors Corp., Inland Mfg. Division of Dayton, Ohio, speaking on the mechanics of the most effective housekeeping program. "Our program, at present, after numerous changes gives us better housekeeping than we have ever had. The program is administered by a permanent housekeeping committee consisting of four members. The supervisor of the Safety and Housekeeping Department, is chairman of the committee. The other three members of the committee include the chief of plant protection, the supervisor of salvage, and the supervisor of the Material Handling Section of the Production Control Department. You will note that each of these gentlemen has housekeeping as an important part of his regular job and therefore they are all anxious to make the program a success. Four temporary committee members serve for a three-month period and are rotated so that all foremen and supervisors serve on it.

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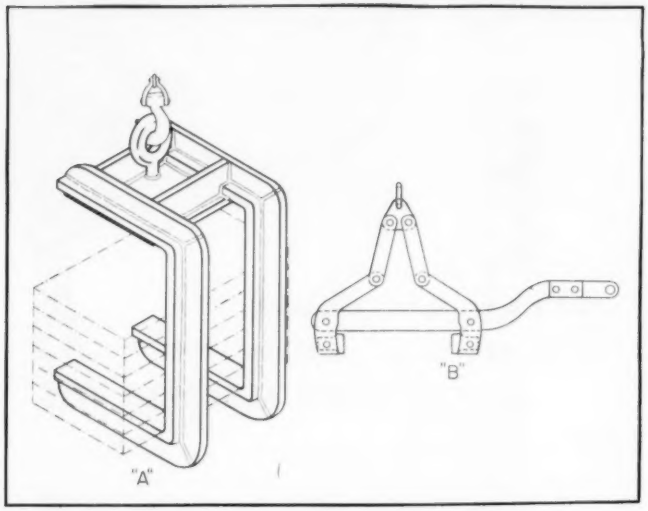

Self-Loading Pick-Up Element

THE Riverside Metal Company, Riverside, N. J., reports a simple device which its engineers designed to eliminate manual lifting of 200 lb. bars of phosphor bronze, nickel silver, cupro nickel and beryllium copper alloys. Although used at Riverside for this specific purpose, other companies can adapt the design to their products simply by varying the dimensions to fit the products in question. Typical items to which the pick-up element can be applied are rubber, roofing material, lumber, textiles, paper, plastics, and metals.

Riverside uses the device to carry 6 bars at a time from shears to flat breakdown and from flat breakdown to annealing and back. The 200 lb. bars are stacked on pallet blocks and when a load is to be moved, the pick-up device slips under the load, much as a fork truck would, and an electric hoist or crane picks up and transports the loaded element. Previously, bars were hand-loaded into lifting mechanisms.

The eye which engages the hoist hook is mounted toward the open end of the device so the center of gravity tilts the load back and "cradles" it, thus preventing it from spilling.

As indicated in drawing "A" the element resembles two giant "C" clamps, welded in parallel. The device is constructed by bending two flats into "C" shapes, reinforcing with additional flats welded perpendicular to the outer sides of the "C" flats, and joining the two by welding connecting members as indicated.

A second device (B) has been designed for handling individual bars when feeding them into or taking them out of machines. This mechanism operates by the tong principle and permits one man to handle individual bars when feeding machines or stacking pallet-blocks. It also was designed and built to solve a specific Riverside problem, but can be applied to other handling problems as well.

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Master's Degree in Safety Engineering

ILLINOIS Institute of Technology will offer a new educational program leading to a master of science degree in safety engineering, beginning next September, it was announced by John J. Ahern, director of the department of fire protection and safety engineering.

The new graduate program is open to all persons with undergraduate degrees in engineering. Those who have obtained bachelor's degrees in fire protection and safety engineering at Illinois Tech ordinarily will be required to spend two semesters for the master's degree. Other engineering graduates

probably will have to spend three semesters.

For more than 35 years Illinois Tech (until 1940 Armour Institute of Technology) has had the only degree-granting fire protection engineering department in the nation. Safety engineering was added in 1945.

Ahern said the new program is in line with the Institute's program of serving the insurance industry by making available courses of study required by the industry in meeting its obligations to the public.

Illinois Accident Rate

FOR every 1,000,000 employee-hours worked in Illinois manufacturing industries during 1949 there were 11.4 disabling injuries. The corresponding rate for the United States was 15.0 disabling injuries. Thus, the Illinois injury frequency rate was 24 percent below that for the nation, according to a recent report by the Illinois Department of Labor.

A lower injury frequency rate was shown in Illinois for all manufacturing industry groups, except chemicals, transportation equipment, textiles, and rubber products, than was shown for corresponding groups in the nation. Fifty-nine of the 97 manufacturing industry classifications for which injury frequency rates are available for both Illinois and the United States showed a better rate for Illinois than for the nation. Even the three industry groups with the highest frequency rates—the lumber, the stone, clay and glass, and the furniture—compared favorably with the national average for these groups.

The injury frequency rates for 1949 in Illinois manufacturing industries varied between the different industry groups from a low of 1.3 injuries in the ordnance and accessories industries to a high of 17.5 injuries for every 1,000,000 employee-hours worked in the lumber products group.

Generally speaking, more disabling injuries occurred in Illinois for the same amount of exposure in the non-manufacturing industries covered by this sample than in the manufacturing industries. Yet only 9 of the 25 non-manufacturing industries showed a higher injury frequency rate for Illinois than for the nation as a whole.

The frequency rate was highest for construction with 37.7 injuries for every 1,000,000 employee-hours worked. In other words, out of every group of 500 full-time construction workers, 38 of them received a disabling injury during the year.

Injury rates were also high in the transportation industry—particularly for the local transportation systems which averaged 26.0 disabling injuries and for the combined transportation classifications of trucking and hauling and stevedoring which together averaged 41.5 disabling injuries for every 1,000,000 employee-hours worked. The Illinois rate of injury in the transportation industry was higher than that shown for the United States. The injury frequency rate for gas utilities was also very high —33.5 disabling injuries in Illinois as compared with only 22.1 such injuries for the nation. For electric light and power, the Ilinois rate was 23.0 disabling injuries as compared with 13.7 for the nation as a whole. The lowest frequency rate in the non-manufacturing group was reported in communications—with telephone companies reporting a frequency rate of only 2.2 injuries.

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Pest Control

(From page 26) is moving more toward the agricultural field.

The material in favor at this writing for general insect control is a mixture of that old favorite,

pyrethrum, and a new synergist, or booster known as piperonyl butoxide. This mixture has a very high order of toxity for the food-plant infesting insects but is relatively safe to humans when used according to the manufacturers' directions. It is suggested that exposed foodstuffs be covered when spraying with this material, and this should be followed to prevent possible contamination by the spray diluent and to forestall poisoned insects from dropping into the foodstuffs. The knockdown of insects is quite rapid.

Rodent Control

Of the new rodenticides available, some are obtainable only by pest control operators. These are risky materials and are understandably under strict control.

Available to the public are several poisons that require baiting. These are limited in their effect to certain species and control is spotty. The poison that is in the limelight is "warfarin." This is available under a variety of trade names and as a concentrate or as a prepared bait. It acts as an anticoagulent in the blood stream of the poisoned rodent. It requires continuous feeding for a period of days to bring about a kill. There seems to be no taste to the animal, and they are apparently unaware of their near-death as they have been observed to feed on the poisoned bait with almost their last bite. It is advisable to keep this poisoned bait in permanent bait stations to avoid the possibility of contaminating human food. The amount needed to kill a human being is far above the amount that could accidentally be ingested. However, the possibility is still there. In case of accidental human poisoning, the effects can be arrested quickly and safely with massive doses of Vitamin K. Several cases of accidental poisoning of pets have been reported and apparently these were due to eating dead rats and mice that have been poisoned with warfarin.

To summarize, bend every effort to maintain your plant in a sanitary condition. Train your personnel so that you become informed about infestations before they have a chance to become really serious. When infestations do occur, get rid of them at once. It is not a disgrace to have rats and insects on your property, but it is a crime to put up with their depradations and their filthy habits.

Pictures by courtesy of Innis, Speiden & Co.

SMALL PLANT AWARD

GC-3 **PLAQUE** . . . beautiful two-tone jewelers bronze etching mounted on a genuine walnut shield. 7¾" x 7¼"—$6.50.

1933 **SERIES**—1⅛ dia., hard glazed enamel, heavily gold plated pin and safety lock catch, $9.00 doz. (plus Fed. tax).

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Eye Protection

(From page 21) with old style goggle designs, being in many cases simply unaware of the vast developments of the postwar era in goggle design and goggle research work.

Employers should realize that great progress has been made in designing safety goggles for almost every need. For instance, only ten years ago the only chipper's goggle available was the old dual-cup design. Now goggles designed for this particular job have been improved to such an extent that there are now several types of plastic cover goggles and semi-cup goggles being used which will assure good and sometimes better protection. The same is true of goggles for many other jobs and fields.

The objective of the employer who wants to reduce eye accidents must be above all to select properly the type of modern improved goggle best suited to the individual job. This is especially important now, when the defense production program is getting under way throughout industry. This writer has found that industrial plants and others requiring the protection of safety goggles are closely re-examining this whole problem of goggle selection.

Goggle Selection

How shall the employer go about best meeting his needs from among the means of eye protection available today? Above all, he will see that the goggles are so designed for comfort that the worker will be willing to wear them when necessary on the job. That means that they must be light, fit properly and meet recognized standards of optical quality. Next, he will see that the goggles selected have passed all government tests and also that they are made for long wear. The advances in achieving long-wear materials have been especially notable. Then, he will consider the important question of the material to be used. Will the goggles be made of plastic or of glass? *

Regarding the plastic or glass question, plastics are becoming more and more widely used for purposes of eye protection. It is time that we pause and take stock of the effectiveness of this material. Do plastic lenses measure up to glass? Are they better than glass? Are all plasties equally suitable?

What are the advantages, if any, of plastic safety goggles? The ques-

* Suggested reading on this topic, "Plastics On Guard," George T. Metcalf Co., 68 So. Main St., Providence 3, R. I.

tion may be answered thus:

a) Plastics are light, and accordingly bring a high degree of comfort to the wearer.

b) Because of their structural qualities they better resist, in many cases, dangers to which the worker is exposed.

Mr. E. A. Ring, Treasurer, Watchemoket Optical Co., who has played an important part in these new plastic developments said to the writer:

"Plastic eye protection has finally reached the important position in the safety field it has long deserved. It has consistently proven itself in industry by meeting the most rigid job requirements. In order to satisfy most job requirements, eye protection must be safe, comfortable and good looking (highly styled). The latter two points are considered very important by safety engineers who want to induce more workers actually to wear the goggles which are provided.

"The viewpoint of the average designer or manufacturer of plastic eye protection is: 'how can we improve existing goggles and give better protection to workers?', 'how can we best adapt and improve plastic material to its important job in the safety field, always bearing in mind that what is new today may be standard tomorrow?'

"The challenge is to see how the plastics industry can best interpret the demands of industrial workers as a whole, and also meet existing standards for impact and optical tests. In short, industry should be provided with the finest eye protection available!"

Meeting the Need

Today the plastic type goggle is supplied in various styles and types —each designed to give maximum protection at a specific job—as, for instance, the cover, face shield and folding designs.

The trend toward *plastic* safety goggles has been steady in recent years, especially with respect to their ability to correct certain difficulties in getting worker safety cooperation. Since all-out production is currently impending in the machine trades, an evaluation of plastic eye protection should serve a good purpose now.

In the view of the National Safety Council, as stated in recent reports: The all-plastic safety goggle has been viewed with increasing favor during recent years in the machine shop field. The lens area is generally larger than in the usual industrial goggle. Various types of side and top shields ward off particles coming from any direction, but at the same time the shields are made of transparent plastic which permits unobstructed light transmission.

These plastic goggles have the further advantages of being light in weight and of being adaptable in the larger sizes to use as cover goggles. When so worn, this outer plastic goggle protects ordinary corrective spectacles as well as the eyes from flying particles.

Plastic side shields for various types of industrial goggles are recommended for many occupations where small flying particles are involved, as in the machine shop. In many cases they have successfully met the objections of employees to side shields of other materials which obstruct the vision, are heavy or are uncomfortable to wear. These shields may also be tinted to reduce possible side glare.

Full Face Coverage

One of the most successful uses of plastics for eye protection has been in the manufacture of face shields. In many cases, protection is needed for the whole face, unusual atmospheric conditions cause goggles to become fogged, or a face shield is more acceptable to an employee. Face shields are made in a variety of lengths for different degrees of facial protection. However, when the adoption of curved face shields is contemplated, they should be critically examined for possible distortion.

As both research and practical

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MILBURN PLY-GARB and PLYGLOVS can help remove "Exposuritis" from your payroll. This durable plastic fiber woven clothing protects the worker from the most commonly used acids and solvents — gives him a comfortable, *safe* feeling — may actually increase his productivity. And this "ounce of prevention" costs much less than the "pound of cure." The **MILBURN PLY-GARB** *line*-line clothing covers the worker from top to toe.

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applications have shown, each kind of plastic has its own area of use and its own limitations. As a group, plastics can hold their own with glass against impact hazards at ordinary temperatures, are less successful at low temperatures, and in two cases are better at high temperatures; they have a definite superiority as far as molten metal splash, high-velocity impact and some chemicals are concerned; they are inferior in respect to abrasion, or sharp impact, and should be avoided whenever there is a possibility of injurious light radiation.

Most of the plastics which have been used for optical purposes belong to the thermoplastic group. As contrasted with the thermosetting group which hardens into permanent shape by subjection to heat and pressure, the thermoplastics are softened by heat and hardened into shape by cooling. Until fairly recently, thermoplastics were unsuited to applications in which they were exposed to temperatures of 160°f or higher. Newer developments, however, have improved thermoplastics to the point where they are less susceptible to softening at higher temperatures.

The plastics which have properties most suitable for eye protection purposes are vinyl resin, allyl casting resin, cellulose acetate, and methyl methacrylate. The vinyl resins are among the more recent compounds to attain commercial importance in this country. They are derived mainly from acetylene which is reacted with acetic acid or hydrogen chloride, and they appear in a wide range of rigid and elastic forms.

Wearable Protection

Numerous types and applications of plastic goggles have been devised and produced with a view to (a) safety and (b) comfort of the machine shop operative. It is recognized that unless goggles, regardless of type, provide the maximum of comfort and personal eye-well-being, it is hard for the machine shop foreman or safety supervisor to make sure that they are in constant use every working hour on every worker.

Finally, the importance of the psychological factors of light weight, transparency and ability to be used for frame as well as lens construction should not be overlooked in assigning to plastics the rightful place they deserve in the eye protection field.

To summarize: In order to attain maximum eye protection for his workers, each safety supervisor or foreman should follow this procedure:

1. Analyze the eye hazards of the job and the needs of the workers.
2. Select the most modern, improved types available for maximum safety at each job.
3. Choose a comfortable, good looking goggle that workers will wear.

The importance of adequate eye protection looms large in the mind of the machine shop employer when he thinks of these qualities: how important is it to attain the maximum of eye protection at my machines and benches, and what does inadequate protection actually cost?

Pictures by courtesy of Watchemoket Optical Co.

American Standards

NINETY-NINE new and revised American Standards are listed for the first time in the latest edition of the Price List of American Standards just published by the American Standards Association. This list contains more than 1180 standard specifications, methods of test, and symbols and abbreviations in civil engineering and construction, mechanical engineering, electrical engineering, safety codes, ferrous and nonferrous materials and metallurgy, rubber, textiles, mining, pulp and paper, photography, motion pictures, and gas burning appliances.

Important new standards listed include a series on electric discharge lamps—general service, instant-start single-pin hot-cathode, cold-cathode, and bactericidal—electrical indicating instruments, gas water heaters, grounding-type attachment plug caps and receptacles, and safety requirements for operation of open-surface tanks. There are also two new American Standards on gears—one on nomenclature, terms, definitions, and illustrations, and the other on inspection of fine pitch gears.

Special publications offered include "Standards—Spearhead of Industrial Mobilization" a report on standardization in national defense, in company operations, in procurement, in construction, and in safety from the proceedings of the First National Standardization Conference held last November. Also included is "Standards Are Your Business," the story of the development of the ASA federation.

The new list offers a complete set of all American Standards at $280 and a complete set of all American Safety Standards at $40.

The 26-page list of American Standards can be obtained from the American Standards Association, 70 East 45 Street, New York 17, N. Y. without charge.

McDonald Plant Debut

IN THE grand manner of Southern California's best movieland traditions, the formal opening of the new quarter-million dollar B. F. McDonald Company industrial safety equipment and safety clothing plant in Los Angeles was marked by a full hour telecast during the celebrations. Over a thousand guests were at the plant to watch the show being televised.

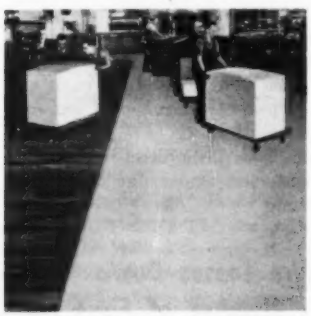
The show, entitled "The Little Man Who Wasn't There," contained a documentary account of the famous Argonaut gold mine disaster which claimed the lives of 47 miners in 1922, a tragedy in which B. F. McDonald, head of the

McDonald Company, captained one of the U. S. Bureau of Mines Rescue Teams.

The dedicatory address was delivered by Glenn McCarthy of Houston, Texas. In the text of his message, McCarthy cited several examples of how today's scientific safety equipment has contributed to the efficiency of the oil industry.

Make Floors Rugged

(From page 20) principle applies to wood floors. There is no need to rip up the old flooring which has splintered, cracked and dried out. Plastic resurfacing compounds, the same as used on concrete floors which have become rutted and worn, can be used to resurface wood floors. There is one especially suited for topping entire wood platforms now being used extensively in industrial plants, railroad depots and other places where traffic is constant. It bonds securely and provides exceptional traction. It also compacts under traffic instead of wearing off and keeps trucking noise at a minimum by absorbing shock. Due to its fire-resistance, dangerous fires can be stopped from spreading and a great many times the overlaying of wood floors brings about an immediate reduction in fire insurance rates.



Wood floors can be smooth, level and fire-resistant with new topping compound.

Preserving Wood Floors. In cases where wood floors have their definite purpose and it is not practical to resurface them, they should be preserved and protected. There are liquid wood preservatives available that restore life to dried out wood by replacing the natural gums, oils and resins that traffic and long service have removed. In freshening the wood fibers, much of the flexibility is restored. This treatment also gives added protection against termites and other wood-boring pests. It gives the surface an attractive glossy finish, renders the wood resistant to moisture, and prevents the dusting usually caused by continual traffic. Usable on both hard or soft wood floors, it will bring out the fine grain without changing the color of the wood.

A Foregone Conclusion

Well-made concrete, wood, tile, stone, brick or composition floors have a long and useful life, but they will wear out. People are inclined to temporize—to delay—to wait until something goes wrong. Accidents caused by faulty floors take their toll in increased insurance rates, loss of time, damaged merchandise and general inefficiency in production. It is best to look ahead, plan ahead, so these conditions will not exist . . . but, if they do, correct them now, they'll only get worse and be more costly. In addition, it pays to build comfort into your floors. More and better work can be turned out by men and women who are fresh instead of tired; healthy instead of aching; good humored instead of irritable. Look at your floor, then do something about it. Protect it, or repair it.

Pictures by Courtesy of the Stonhard Company.

Group of RUEMELIN Fume Collectors Keeps Shop Clear of Welding Fumes

This well ventilated welding department is typical of hundreds of similar installations. Welding operators appreciate smoke and gas-free atmosphere. Thousands in service. Many repeat orders. Collecting fumes at the source with local exhaust hoods has proven most practical in operation. Write for Bulletin 37-D describing all types of Ruemelin Fume Collectors.

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Oil Safety Record

THE petroleum industry in 1950 achieved the best safety record of its history, according to the annual survey compiled by the Department of Statistics of the American Petroleum Institute. The study shows that the chances of an oil employee being injured fatally or

permanently disabled now are about 5,900 to one, against an average of 4,400 to one in 1949 and 2,800 to one in 1946. The number of employees fatally injured or permanently disabled during 1950 was 81, a 26 per cent improvement over the 109 reported for 1949.

The past year was the fifth consecutive year in which a decrease in accident frequency and severity was recorded, and the second in which the record bettered the previous lows established in prewar years. During the war, injury rates increased disproportionately because of the shortage of skilled manpower and the constantly increasing tempo of production and output.

The 1950 survey covered 477,925 employees in 265 companies working 1,007,694,000 hours. The frequency rate of injuries last year fell to 10.08 per million man-hours worked, a decrease of 4.4 per cent from the 1949 rate of 10.54.

The severity rate of injuries for the first time dropped below one day lost per thousand man-hours worked, falling to a figure of 0.84 compared to 1.03 the year before. This was a decline of 18.4 per cent.

The greatest improvement in safety performance last year was among refinery workers. There, the severity rate (the number of days lost per 1,000 hours worked) was more than cut in half, dropping from 1.22 to 0.60. The number of workers fatally injured or permanently disabled fell from 42 in 1949 to 15 in 1950.

The new oil industry safety achievement is a result of the continuous safety consciousness of the nation's oil men. Oil company executives were among the first to recognize the need for safety education and training. Management in the oil industry assumes full responsibility for safe operating practices and the training of foremen and workers alike in accident prevention.

In 1920, the American Petroleum Institute set up a committee to serve as a clearing house for the safety information and programs developed by its members. Through it, oil companies are encouraged to intensify their own safety programs and to pool their safety knowledge so that it can be shared by all.

Single copies of the 1950 summary of injuries may be obtained by writing to the API Department of Statistics, 50 West 50th Street, New York 20, N. Y.

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Pennsylvania Optical Co. To Market Own Lenses

THE Pennsylvania Optical Company, one of the country's oldest optical goods manufacturers, has announced it is introducing a complete line of industrial lenses under its own trade mark. For more than 45 years the company has manufactured precision ground and polished optical products, including welding lenses made for other trade marks. Now for the first time it will label each lens with Penoptic, according to Henry Cheatham, vice president.

"Our industrial line includes lenses for goggles and helmets," Mr. Cheatham said. "For more than 25 years we have manufactured individually polished lenses which we have supplied to head and eye protective equipment manufacturers. But we have never, until now, sold them direct to industrial consumers under our own brand name."

Fire Losses Down Number of Fires Up

ALTHOUGH U. S. fire losses declined slightly last year, the number of fires in the country went up, the National Board of Fire Underwriters reports.

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Revised fire loss figures totaled $648,909,000 for 1950, a decrease of .4 per cent from 1949, according to the report submitted to the National Board's 85th annual meeting in the Hotel Commodore in New York.

Noting the gradual decrease in fire losses since 1948, the report pointed out that this was despite inflation which would tend to increase the dollar losses, and it attributed much of the downward trend to the continuing fire prevention efforts of the entire fire insurance business.

"Working through public officials in the enactment of codes and ordinances as well as through educational channels, the importance of fire prevention has been increasingly pressed, and were it not for the cumulative effects of this program the loss record under present conditions might readily be far more excessive than $648,909,000," the Board's Committee on Statistics and Origin of Fire stated.

The number of fires in cities of 2,500 population and over was estimated at 838,145 which was 2.6 per cent over the 1949 figure.

The committee drew attention to a curious fact observed in the reports from fire chiefs. Building fires in cities under half a million population went up 1 per cent while building fires in cities of one million population went down 22 per cent with "residential" fires dropping 14.6 per cent, "mercantile" 49.2 per cent and "manufacturing" 40.4 per cent.

Lens Coating Licensed to A. O.

THE protective lens coating "Tuf-Cote" is now available from all American Optical Company offices through an agreement entered into between the Wallace Optical Company, Inc. of Detroit, Michigan and the American Optical Company of Southbridge, Mass.

Safety Center

THE Safeguarding Mfg. Co. of Chicago, engaged in the manufacture of safety devices for some time, has now been incorporated. C. B. Cannon, who is president, has had experience in industrial supervision abroad and ten years of safety promotion here.

The vice-president, W. I. Martin, has been in the manufacturing of safety devices for many years. A. A. Freure, the treasurer, has had extensive experience in industrial production; while K. M. Fowler, the secretary, has had charge of the safety work for a large organization.

At the company's plant, known as Safety Center, at 6200 S. Wentworth, there is an extensive display of safety guards and a library of over 20,000 feet of technicolor safety films which show the latest safety advances. It is expected that an educational program will be conducted there. Future announcements will give details.

industrial Hygiene

ASSOCIATE EDITOR
JACOB A. GOLDBERG, A.M., Ph.D.

Code for Open-Surface Tank Operations

TO PROTECT workmen from escaping gas, vapor, or mist involved in open-surface tank operations, a new American Standard Safety Code has been approved and published by the American Standards Association. It is the American Standard Safety Code for Open-Surface Tanks, Z9.1–1951.

Operations involving the immersion of materials in liquids and their subsequent removal are covered in this code. These include electroplating, washing, anodizing, pickling, quenching, dyeing, dipping, tanning, dressing, bleaching, degreasing, alkaline cleaning, stripping, rinsing, and digesting.

The safety of the operator is the primary concern of this standard. The provisions are intended to protect him from contact with gases, vapors, mists, or liquids involved in any open-surfaced tank operation that might injure his health.

The standard classifies open-surface tank operations into twelve classes depending upon the relative need for controlling the gas, vapor or mist rising from the tank. Tables are included to allow classification of any open-tank operation from a knowledge of the tank temperature; the boiling point, flash point and relative evaporation rate of the liquid in the tank; the maximum allowable concentration in the air of the vapor or mist produced; and the extent that the operation produces mist. Ventilation requirements vary with the need for control as indicated by the classification of the operation.

The standard stipulates for each "class" a minimum control velocity for enclosing hoods with one or two open sides; for canopy hoods with three or four open sides; and for lateral exhaust with no hood over the tank. The procedure is also outlined for computing the ventilation rate (in cubic feet of air per minute) required to maintain the necessary control velocity for each hood type and includes a number of examples of these computations.

Rules on personal protection are included as well as rules on operation; inspection; maintenance and installation; special precautions for cyanide; and vapor degreasing tanks. Provision is made to allow the use of both control means other than ventilation, and methods of ventilation involving supplied as well as exhausted air. When an operation has both a low hazard potential and a low rate of gas, vapor or mist evolution, general room ventilation by either natural or mechanical means is considered safe and acceptable as the control means.

The appendix at the back of the code includes tables of the resistance to corrosion of materials used for hoods, ducts and exhaust fans, as well as seven pages of typical exhaust hood designs.

This standard is a revision and expansion of the American Standard Safety in Electroplating, Z9.1–1941.

Work on the American Standard Safety Code for Ventilation and Operation of Open-Surface Tanks, Z9.1–1951, was sponsored by the American Industrial Hygiene Association, the American Society of Heating and Ventilating Engineers, and the National Association of Fan Manufacturers. Under the procedure of the American Standards Association, labor groups, government departments, insurance concerns, manufacturers, and users of this equipment were represented on the committee that developed the standard.

Copies of the American Standard Safety Code for Ventilation and Operation of Open-Surface Tanks, Z9.1–1951, may be obtained from the American Standards Association, 70 East 45 Street, New York 17, N. Y. at seventy-five cents a copy.

OF UNUSUAL INTEREST
(See page 64)

FEATURE

This is the first of three feature articles concerned with Skin Protection. The next two articles of the series will be published in the August and September issues of SAFETY MAINTENANCE & PRODUCTION.

CUTTING-OIL DERMATOSES

How to detect and identify the different types of dermatoses from cutting oils.
What measures will help prevent oil dermatoses?

Courtesy, Bureau of Public Relations Department of Defense, Washington, D. C.

Cleanliness prevents dermatitis.

By HARRY SHAPIRO, M.D., Medical Unit
New York State Division of Industrial Hygiene & Safety Standards

THE dermatoses which result from occupational exposure to oils have been a vexing problem with which industry has had to cope for the past century. The magnitude and relative economic importance of this problem may be gleaned from the following facts. During the peak years of the late war the general category of industrial dermatoses rose sharply to head the list of compensated occupational diseases in New York State. For the years 1943 and 1944, industrial dermatoses accounted for 4,135 claims, of which 890 or 21.5% were due to exposure to oils and greases. Of these, 423 or slightly under half, were from cutting oils. Though claims for this disease declined appreciably with the return of industrial operations to peace time levels, they nevertheless continue to comprise a sizable proportion of all dermatoses reported in New York state.

Knowledge of the factors which exert a significant influence on the occurrence of cutting oil dermatoses in industry is the first and perhaps the most important step in planning a program of effective control for this disease. Such a program, when evolved after careful evaluation of the causal factors, and properly organized and supervised, is capable of achieving a great measure of success in reducing the incidence of this disease.

Cutting oils are employed in a wide variety of metal machining operations where lubrication or coolant properties are required, and those currently used in industry possess a very variable composition and contain a wide variety of additives. These compounds are usually classified into the soluble and insoluble oils depending upon their physico-chemical characteristics. The latter consist principally of a mineral oil base to which lard or fatty oil, and sulphur or chlorine compounds are added. These insoluble compounds possess the property of reducing friction between cutting tool and work piece, and are therefore used primarily as lubricants.

The soluble oils usually consist of a mineral oil base, water and an emulsifier, and are used almost exclusively where coolant properties are required, as for example, to remove the heat generated during the machining of metals. A host of emulsifying agents and other additives can transform these soluble cutting oils into chemical compounds capable of inducing any of the skin reactions described below. In general, insoluble oils have been demonstrated to be bacteriologically sterile. The soluble varieties, however, generally exhibit variable degrees of contamination with pathogenic organisms.

Predisposing Factors

The factors which predispose to oil acne are found among those generally thought to be a common denominator of the industrial dermatoses as a whole. Outstanding among these, of course, is the so-called difference in susceptibility or resistance, attributed by many as largely reflecting a worker's habits of personal cleanliness. Hairy skins, presumably because of their numerous and well developed hair follicles, are particularly prone to develop lesions of the acneiform or follicular type. Dark skins are notably more resistant, as they are to the action of skin irritants in general; and Negroes possess a singularly unique resistance to the oil dermatoses. Those exhibiting greatest susceptibility, as a group, are light complexioned females with a delicate shiny skin texture, who in addition more frequently tend to acquire the eczematous form of the disease. Dry skins are more predisposing than those of the

(Continued page 58)

LEARNING THE

INNOCENT BYSTANDER

EVERYONE knows that the innocent bystander is just as vulnerable as anyone directly involved in some incident. For instance, the official of a dairy plant was watching the operator of a capping machine which puts caps on milk bottles. One of the bottles broke, and the official was struck in the eye by a sliver of glass. It was necessary to remove the eye ball. It is becoming more widely recognized that officials and visitors as well as the machine operators need protection for their eyes when in the production areas. Here is one more instance of the wisdom of making eye protection mandatory for everyone in shop areas.

POORLY PLACED CONTROLS

CARE should be exercised in the placement of emergency control levers for equipment. A case in point involves the location of manual controls for a carbon dioxide fire extinguishing system on a certain machine. Fire broke out in the machine when some quench oil hit a metal surface which had been heated to well above the flash-point of the oil. The operator was unable to turn off the oil pump or to start the manually controlled carbon dioxide system because both sets of controls were located on the flame-enveloped machine. In a case such as this, it would be advisable to have an automatic carbon dioxide system interlocked with an oil-pump cut-off. Furthermore, manual controls for both sets of equipment should be positioned at a safe distance from the machine itself.

WHERE THE SAFETY TOE WASN'T

THIS employee was standing on the ground in an upright position handling an empty drum. He was preparing to roll the drum over on its side, and to do so, grasped the drum at the top lip in order to angle it to the ground. However, he lost his grip, the drum fell and struck his right foot, injuring the large toe. This accident emphasizes once more that safety shoes will benefit employees in practically every industrial occupation.

HARD WAY

EVERYONE ALERT

IT IS the combination of little carelessnesses that so often results in an accident, especially on the highways or wherever motor vehicles are involved. A garage employee was in a crouching position checking the tandem axle on a tank trailer. Another employee was backing a tractor trailer and the rear bumper of his trailer struck the first employee in the back. This accident resulted from the failure of the man backing the trailer to make sure that the way was clear. If he could not get a good view of his path, he should have had someone to guide him. The man who was struck should have been on the lookout for the moving vehicle since he was in an area where vehicles were frequently being moved.

WAIT 'TIL IT STOPS

A MAINTENANCE man was drilling a hole in a piece of stainless steel. While the drill was still revolving, he tried to remove the steel which had been caught in the drill. The obvious result was a deeply lacerated palm. The employee was guilty of an improper method of doing the job and also of lack of discretion. He had failed to clamp the steel before drilling. Had he done so, the drill would have made a clean cut and freed itself. It is also a basic rule never to touch machinery or tools while they are in motion. In this case the drill was still turning and the worker had not even shut off the power.

FREAK ACCIDENT, BUT THE SAME OLD CAUSE

A WORKER had bent over to pick up something from the floor. His cigarette lighter slid out of his pocket, struck the floor and ignited some kerosene-soaked rags. He tried to tramp out the fire, but his own trousers on which he had spilled some kerosene also caught fire, causing first and second degree burns to both of his legs. Even though this is an unusual accident, the company has since then restricted the use of cigarette lighters in this department where flammable liquids are used. A further and more basic recommendation is to provide closed-cover oily waste cans for the kerosene-soaked rags.

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Cutting-Oil Dermatoses

(From page 55) oily or seborrhoeic variety, though the latter more often develop blackheads, folliculitis, and acne. The incidence of oil acne is likely to be higher during the summer months, in warm industrial environments where less clothing is apt to be worn, and where increased secretions of sebum and sweat are the rule. A large proportion of the acute industrial dermatoses seem to occur in the younger age groups and in those most recently engaged in their occupations, and this appears to be true for the dermatoses arising from exposure to cutting oils. Of the known predisposing factors then, age, race, type of skin, and personal habits of hygiene play leading roles.

Types of Oil Dermatoses

The type of skin lesions observed in workers in the oily trades will of necessity vary with the nature of the oil, the duration and conditions of exposure, and the reaction of the skin. Various classifications of the dermatoses arising from prolonged contact to the cutting oils have been advocated, but the following, based on that suggested by Schwartz, will serve to focus attention upon the varied clinical manifestations which this occupational dermatosis may assume. The eczematous form generally results from contact with the lower boiling petroleum fractions. Acneiform or furuncular lesions more usually follow exposure to the intermediate fractions, lubricating oils, waxes and other solid compounds. The proliferative type frequently results from contact with the higher distillates.

Eczematous Type:

Simple erythema, followed by scaling and pigmentation may occur, but rather infrequently. More usually, the skin changes observed are dry and scaly, blistered, moist or ulcerated. As a rule, the eczematous dermatoses result from exposure to the soluble cutting compounds, and are caused by primary skin irritants, chiefly acids and alkalis, or other chemical agents such as inhibitors, which occur in, or may be added to, the cutting oil. Organic solvents in these compounds, by their defatting action on the skin, may also cause an eczematoid type of reaction. In hypersensitive individuals, allergic skin manifestations in the form of papules, vesicles or oozing and crusting dermatoses may be encountered from the skin sensitizers in these oils.

Acneiform Type:

The most common form is oil acne, which tends to follow exposure to the insoluble oils. This type is characterized by the early appearance of blackheads which develop in the hair follicles. These are followed by pimples which may become acutely inflamed and eventually go on to suppurative pustulation. Following discharge of the follicle and its contents, atrophic pitting and scarring may remain. The lesions exhibit a very characteristic distribution pattern, and are usually confined to areas of skin exposed to contact with the oil or oil impregnated clothing. Sites of predilection are the back of the hands, extensor surfaces of the forearms, anterior surfaces of the thighs and occasionally the back of the neck. The face may become involved where heavy oil mists tend to create an oil film on the skin of this region, or where oily rags are used to wipe the face. Oil soaked underwear may cause lesions to appear anywhere on the trunk where contact with the skin is established. These oils may contain a variable amount of chlorine by virtue of the chlorinated hydrocarbons present and they may induce skin lesions indistinguishable from those caused by the chlorinated naphthalenes and diphenyls, namely chlor-acne.

There is still a great deal of controversy regarding the exact nature of the causative factor responsible for the lesions of oil acne. Theoretically, there are said to be three primary causes of oil acne, physical, chemical and bacterial. To date, no specific chemical compounds in cutting oils, with the possible exception of the chlorinated hydrocarbons, have been identified as the causative agent. Moreover, it has been generally agreed that bacteria play little if any role as a primary cause of cutting oil acne. The most commonly accepted theory, based on evidence to date, appears to favor the concept of chemical irritation, associated with the mechanical plugging of the follicular openings. The

resultant hardened plug may eventually cause sufficient irritation to promote local cell-growth changes which are frequently associated with or followed by bacterial infection from secondary invaders. In some instances the fine metal splinters often found in these oils may cause minute abrasions through which secondary infection can arise.

Proliferative Type:

Lesions less usually seen are papillomata and warts. The former are described as flat and brownish and occur on skin areas exposed to certain of the mineral oils having skin-hardening properties. Schwartz states that approximately 10% of all workers in oils and greases develop these growths. Since cancer-producing agents are not usually found in the mineral oil fractions used in the cutting compounds in this country, cancer from cutting oils are rare in the United States.

Infected Type:

Acute infections may result from the abrasive action on the skin of metal fragments which may accumulate in the cutting oils. Abrasions thus sustained can become infected with pus-forming organisms which are usually present in the soluble oils.

Differential Diagnosis

In the differential diagnosis, the most important first clue will often be provided by the occupational history of exposure to one or several of the many petroleum fractions or cutting compounds. Moreover, the characteristic type and distribution of the lesions, as previously described, should immediately suggest the diagnosis.

The principal acne-like lesions from which oil acne has to be differentiated is the so-called acne vulgaris. In the latter, the location of the lesions, chiefly on the face, chest and back, and the frequency with which they occur during adolescence, will serve as distinguishing criteria.

Patch tests may be helpful in differentiating the allergic eczema types of oil dermatoses in hypersensitive individuals from those of non-occupational origin.

Prevention of the Oil Dermatoses

The primary aim of all preventive measures is to reduce, or if possible eliminate entirely, the time in which the skin is exposed to the action of the cutting oils. There are several ways by which this may be accomplished, and for simplification they may be classified into two broad categories of prevention, namely, personal hygiene and protective equipment, and plant control measures.

Personal Hygiene and Protective Equipment

The best prevention, of course, is good personal hygiene. There is ample evidence to suggest that a well organized program of this type, if carried out conscientiously and consistently, will aid immeasurably in preventing or reducing the incidence of oil acne. It is, however, highly important that a routine practice be adopted, and that it be vigorously pursued under the close supervision of a responsible person in charge. Workers should not be left to their own devices, nor expected to wash up on their own time, for it will be neither consistently nor thoroughly done. Washing and showering should be done on company time, and under strict company supervision. Close attention should be paid to personal cleanliness by washing those skin areas which have become contaminated with oil.

W. F. Dutton has recommended the following regimen, which, with minor modifications, should materially reduce or prevent the occurrence of oil acne in industry:

1. On entering the plant, remove street clothes. Wash the face, hands and forearms thoroughly with warm water and a non-irritating skin cleanser to assist the cleansing process. Change into work clothes.

2. After drying the skin with an individual clean towel, apply either lanolin alone, lanolin with castor oil, or some other approved protective ointment to exposed parts and rub in well.

3. The foreman should inspect each worker as he enters the workshop to insure the efficient carrying out of the foregoing instructions.

4. Pre-lunch: wash face, hands and forearms with warm water and non-irritating skin cleanser.

5. Post-lunch: Repeat A.M. schedule.

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6. At end of work day, shower (under supervision) and change into clean underwear and street clothes. The former should be laundered and changed daily.

Most important of the group of personal protective devices is protective clothing. This may consist of sleeves, gloves, aprons and coveralls. The latter may be of oil impervious material, but in any case should be changed frequently. Underclothes which may become oil soaked should be laundered daily.

Protective ointments of some soothing preparation, which provide a skin coating in advance of exposure, will to a great extent prevent the ingress of fine metal particles, dirt, and other extraneous matter into the natural skin openings, or abrasions if present. A host of applications have been looked upon with favor, among which are anhydrous wool fat, crude castor oil and the greaseless creams. Most important, however, is that they be applied after washing and before exposure.

Plant Control Measures

Management should provide adequate washing and showering facilities, and abundant supplies of clean towels, skin cleanser, protective cream, and clean work clothes, preferably laundered by the company. The practice of allowing workers to use dirty rags to wipe oil accumulations from the skin should be discouraged. In rare instances where rags are indispensable, a clean supply should be provided daily. Posters and/or directions emphasizing the technique and importance of good skin hygiene may be displayed conspicuously throughout the plant in strategic areas and washrooms, but in no case should they be regarded as a satisfactory substitute for direct supervision.

Splash guards on machinery, and other mechanical controls designed to reduce oil spray to a minimum, will materially reduce the exposure. Machines should be cleaned daily. Where oil has a tendency to accumulate on the floors, Carpenter and Clark suggest the use of floor boards or catwalks which will prevent prolonged contact of the worker's feet with the oil.

Preplacement personnel examinations are advocated to properly place applicants for work in the oily trades with a history of seborrhoeic acne, or any other of the predisposing factors previously enumerated. Periodic dermatological examination of the workers, as recommended by Schwartz, can be used to discover early cases. In addition, it can serve to focus the attention of both worker and management on the importance of a program which has for its chief aims education and the early recognition and prophylaxis of the oil dermatoses. Cases manifesting acute symptoms should, if possible, be temporarily removed from their jobs and given work in areas of the plant where exposure to oils may be avoided. This will reduce time loss and permit the acute skin lesions to subside. Subsequent placement will be governed by the ability of the individual to continue work under conditions of exposure after appropriate prophylactic measures have been taken to insure against a recurrence. Refractory cases should be permanently transferred to an area in the plant where contact with oil can be avoided. Where this is not possible, it may be necessary to advise the worker to change his type of occupation.

Cutting oils, particularly the insoluble, should be changed at intervals or treated appropriately so that abrasive foreign particles are removed. This can be done by screening or centrifuging the oil. The soluble cutting oils, though frequently contaminated with pathogenic organisms, rarely give rise to the acne-pustular forms of the oil dermatoses. However, where practicable, these oils may be sterilized by heat, but the addition of bacterial inhibitors should be avoided so as to obviate the introduction of a skin sensitizer.

In the event that all preventive measures described above fail to provide a solution to the problem, it may then be necessary to change the type of oil, if feasible, or to procure it from another source.

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From an article in the New York State's Division of Industrial Hygiene & Safety Standards publication "Monthly Review."

THE INDUSTRIAL Nurse

EDITOR

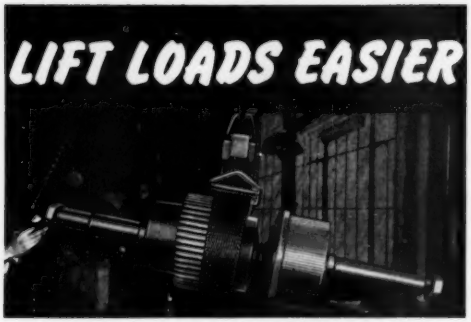
ROSAMOND J. WEBSTER, R.N., A.M., Ph.D.

Reassurance by Reference

PREVENTIVE medical and safety measures are fundamental to the effective operation of industry. These are generally accepted principles, although they are not always adopted and occasionally, when adopted, not always acted upon. Sometimes this is due to the lack of enthusiasm of those responsible for the operation of these activities; sometimes to a feeling that everything is going along well, with few injuries and an excellent safety record. This means moving along with the tide on the basis of past performance and is an unsatisfactory plan of operation. In still other instances a feeling of semi-helplessness is permitted to develop—what's the use—the workers won't cooperate anyway—all that is possible, or at least nearly all, is already being done by management—and many more reasons and excuses that can be readily conjured up. But none of these are adequate. If the injury rate is high or comparatively high, something must and can be done by proper teamwork. Often the measurement of high or low rates is inadequate because the base against which to measure for the particular types of jobs per 1,000 or 1,000,000 manhours of work has not been computed. Well trained industrial nurses know that no known steps should be omitted. One accidental injury is one too many. These nurses are in a position to bring to bear experiences in other fields of preventive medical care as evidence that much can be accomplished even under trying and difficult circumstances. For instance, the maternity service of a large hospital reports that the maternal mortality for the past 15 years was 15.3 per 10,000 live births. This is a fairly good showing. But the staff was not satisfied. The rate has decreased in this hospital from 42.7 deaths per 10,000 live births to 12.3, then to 3.2, and then, to top off this achievement, there were 10,193 consecutive deliveries without a single maternal death. There are sound medical and public health reasons to account for this achievement. Parallel goals can be set in industry. In some plants they are reached.

Day Care

CHILD care is hardly to be considered as a responsibility of industry, more particularly in times of peace. But when many hands are required in industry, mothers of working age are drawn into industry in considerable numbers. Since they often have the responsibility of caring for young children, they cannot leave their homes unless local communities provide facilities through day care services for their youngsters. Often the needs far exceed the available facilities, and in some areas industry has stepped in to relieve the situation. Basing current attention to this problem on past experience, the Child Welfare League of America is spearheading an effort to interpret to industry the opinion of child care experts that day care centers should be operated as community projects rather than under the administration of industrial employers. As reasons, the Committee giving special attention to this matter, has cited the following poor features of industry-operated day care programs during World War II: (1) day care was used as a device to recruit mothers for employment, rather than as a service to safeguard children; (2) the program was frequently geared to the shifts of the plant, rather than to normal child needs; (3) centers were not located in, nor were they a part of, the neighborhood in which the child lived, so that he was deprived of forming his natural ties and relationships in his neighborhood. The Day Care Committee of the League holds that a properly operated day care program requires the joint planning of health, education and welfare authorities, as well as industry, labor and other community groups. Every community of some size has a Council of Social Agencies or similar organization which is usually eager and willing to meet with industry representatives of local plants to meet the needs presented by industry and the problems posed for the operation of day care units for children of gainfully employed women. This is an area in which well equipped industrial nurses may play an effective part as representatives of their employers.



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Personality Problems

ONE basic result of World War II and the military problems that face the country at the present time has been a greater awareness of the situation posed by psychopathic personalities. These individuals have been studied quite extensively since the days of the first world war. In both eras they caused much trouble to all who had to deal with them. On the other hand some basic errors arise because those in various positions of authority, whether military or civil, are not fully aware of the problems posed by such personalities. The typical individual of this type will quit school in the seventh or eighth grade because he was fed up with the school routine. He has a tendency to wander about for several years, going from one job to another every few months. Because of his work history and seeming inability to stay at one job very long, he evinces a tendency to become involved with shady characters. On the job he may be a shirker, trouble maker, petty thief, with a high record of absenteeism and lateness. One of his chief failures is to profit from experience, whether it is in job holding, marriage, or in any other area of his basic experiences. While many of this type have a poor school record, others may show a high degree of intelligence and somehow manage to stay long enough to graduate from a vocational school, a high school or even college. But the amount of education to which they are exposed does little to modify their fundamental behavior patterns. In the armed forces they ranked high among those who had to be dishonorably discharged. As a result, psychiatric emphasis is now more readily apparent in screening and examining prospective members of the armed forces than ever before. From the point of view of industry, and especially in times of labor shortages, such borderline or frank cases of constitutional psychopathy will inevitably enter industry. Whether in times of national emergency or in more normal times, a considerable amount of work in civilian life is carried on by such individuals. Alertness to them on the part of industrial nurses and readiness to help them over rough spots should be of considerable help to industrial production and to these problem personalities as well.

The Well State

A PHYSICIAN with a distinguished record of long service with the United States armed forces used the term "the well state" to define his concept of how we can have a healthy people, and at the same time, a type of government and social organization which would truly meet the needs of the majority of our people. Health of individuals is usually defined in terms of the presence or absence of disease. From the public health point of view this seems to be largely adequate. It does not include other factors—mental and emotional considerations aside—which require consideration. Patently, according to this physician, no great proportion of our citizens would countenance measures for the control of disease which would introduce other evils of even greater threat to the health of the state, because a state can be a very sick social organization while the population enjoys low morbidity and mortality experience. Citing an example, it is pointed out that in the Philippine Islands in the early days of American occupation, lepers were arrested and deported to the leper colony and there confined for the remainder of their lives until therapy for leperosy began to be effective. They were snatched from their families and permanently exiled. Under this system, thousands of lepers went "underground," and were never detected. They spread the disease for years and the control of leprosy made but slow progress. In recent years those who volunteer for treatment and are cooperative have been kept in a hospital in Manila instead of being banished to the island hospital. This change markedly affected the control of leprosy in the Philippines. Perhaps there is a forceful analogy in this experience insofar as health programs by government are concerned. There may also be a lesson for medical and nursing services in industry. Considering the latter, it is perhaps clear that before a medical program or a group procedure is installed, a certain

amount of education about the plan, its purpose, etc. is necessary. With an informed working staff resistance should be minor; if unilaterally set up, some negative reaction follows.

On the International Scene

LARGE industrial organizations with branches in different parts of the world long ago recognized that the health of native workers, as well as that of these sent out from this country, was a prime consideration for successful operations. Many instances could be cited—from fruit to oil to mining operations. Now the world health organization of the United Nations is participating in many studies and preventive as well as curative programs in various parts of the world. Some voluntary health organizations as well as others, such as the Pan-American Union, have in the past and still continue to play an effective role in the overall attempt to control diseases and to prevent their spread.

The sanitary engineer is playing an important part in this work. He is being called upon, as in South and Central America, to teach industrial hygiene, to set up courses of study for native physicians and others, to make industrial hygiene surveys, and to recommend and set up effective programs. His job also includes sanitation, water supply and sewage disposal. Design of health centers, laboratories, or even hospitals is also falling to his lot on the international scene. On the recommendation of some industrial physicians and engineers, industrial nurses have been enrolled for foreign service. All in all, our outlook is necessarily broadening. We must come to look upon the world as a greater unity than ever before. In some communities the large influx of workers from the West Indies and Mexico has created distinct industrial, agricultural, housing, health and sanitation problems. In one West Indian island, American Physicians are working to stamp out completely a native disease which affects the health, longevity and productive capacity of a large segment of the population. Physically effective and healthy neighbors will redound to the moral credit and economic well-being of these neighbors and should add materially to the economic progress of our own country.

In England

IRRESPECTIVE of the point of view held regarding the health insurance and medical plans adopted in England, they are extensively applied and warrant analysis. One of the major problems not fully met relates to industrial health service. Following the usual procedure, a commission was appointed to study the matter and to bring in a series of recommendations. The one positive finding was *(Continued page 72)*

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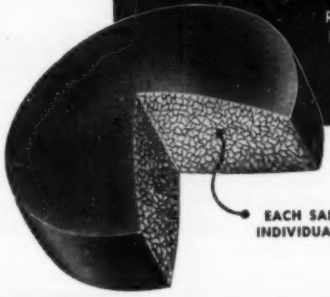

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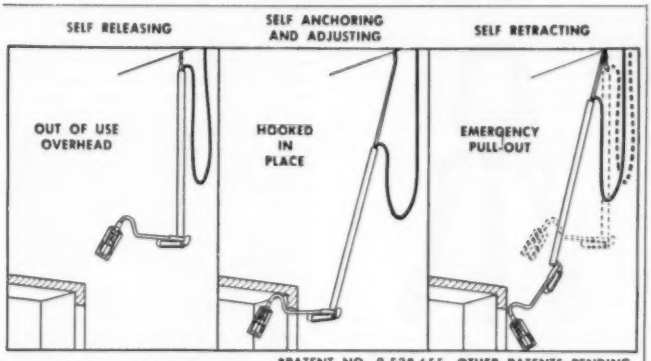
PROTECTIVE CREAMS

G-300 for Reader's Service Card.

A COMPLETE line of barrier creams and liquids for skin protection and cleaning is announced by the Safety Division of The Boyer-Campbell Company of Michigan. Known to the trade as "Skin-Cote," the line consists of six different types of creams and four different liquids to take care of every individual need. The creams come packed in 8 oz., 12 oz., and 16 oz. jars, 12 or 24 jars to a carton and 25 pound pails; the liquids in pints, gallons and 50 gallon drums. In several of the larger automobile plants, they have found that using only two types of "Skin-Cote" gives them almost complete protection and has made dermatitis one of their minor hazards. For details, send in the Reader Service Card, requesting information on #G-300.



THE PYLE-NATIONAL ANCHORLITE

*PATENT NO. 2,538,655. OTHER PATENTS PENDING.

SWIVEL-MOUNTED TEMPORARY LIGHT

G-301 for Reader's Service Card.

AN ENTIRELY new and original invention in an overhead suspension, under-side illuminator, tradename Anchorlite has been developed by The Pyle National Company, of Illinois. The unit has innumerable industrial uses wherever good illumination is required temporarily inside equipment such as freight cars and trucks and trailers while at loading platforms, or underneath equipment in auto service stations, repair shops, locomotive and railroad car shops and in warehouses and stock rooms for lower bin lighting.

The Anchorlite is convenient, always available for immediate use, yet always overhead out of the way. No time lost finding or improvising a support for handlamps; finding extension cords and plug outlets; untangling cords. It is grounded to its support, reducing shock hazards and short circuits and eliminates tripping over cords.

The Anchorlite has a wide range of movement. It is designed to swing free on a swivel when suspended on a stationary bracket. It may also be suspended from a messenger wire to slide the full length of a bay. A sturdy, spring-loaded telescopic device provides up to three feet of expansion in length with a firm supporting tension. The anchoring arm is easily pulled down and hooked where desired. Light is projected *inside* or *under* support, where it is most needed. Upon release, it automatically retracts to the overhead, out-of-the-way position.

Should railroad car, trailer, or auto be moved while Anchorlite is still hooked, no damage will occur, for excessive tension will automatically release the anchoring arm. It can be supplied with a mercury switch in the cord which automatically turns on light when anchored in position for use and turns off light when released. For details, mark the Reader's Service Card with the code number shown above.

FLOOR CLEANER-BACTERICIDE

G-302 for Reader's Service Card.

SUCCESSFUL development of a radically different combination floor cleaner-bactericide has just been announced by Piatt & Smillie Chemicals, Inc., of Missouri. The new product, which has been test-marketed in a few selected areas during the past year, is now being sold on a national scale under the trade name of "First" Antiseptic Liquid Detergent.

This product thoroughly cleans, deodorizes and sanitizes in a simultaneous operation. According to the manufacturer, it cleans through the use of an excellent mixture of synthetic-organic detergents, and sanitizes at the same time because it contains a powerful new germicide, Santophen 1 (Ortho-Benzyl-Para-Chloro-Phenol). This combination makes possible an amazing cleaning plus a radical reduction in bacteria and fungi count. "First" Antiseptic Liquid Detergent is particularly well-suited for use in hospitals, schools, restaurants, hotels, theaters, industrial plants, banks and office buildings.

Nearly all previous types of floor soaps and solutions have been designed for use with hot water. For this reason, maintenance employees do not always get good cleaning results because floor temperatures seldom exceed 60 to 70 degrees. The chemists have specifically compounded "First" to perform best between 60 to 80 degrees floor temperature for a maximum range of efficiency in cleaning operations. Revolutionary as it sounds, "First" works well with cold water alone. For details, mark the Reader's Service Card with the code number shown above.

INSULATING GLOVE

G-303 for Reader's Service Card.

A NEW glove, designed to give maximum protection against heat and also provide good wearing characteristics, is announced by the Singer Glove Mfg. Co. of Illinois. This insulating glove is made in three layers that are securely quilted and stitched together. The heavy, tan-colored terry cloth forming the top layer is treated to retard heat and it also has a cushioning effect to protect the hands and to take the brunt of hard usage.

To provide the maximum of heat insulation, the middle layer is of asbestos and wool. The inside layer is of heavy fleeced cotton for comfort next to the worker's skin. The glove is light in weight, flexible, insulates against heat, and offers long wear for welders or personnel handling hot materials. Available in glove and mitten styles in 12 and 14 inch lengths. For details, mark the Reader's Service Card with the code number shown above.

GROUND DETECTOR

G-304 for Reader's Service Card.

LOCATING a grounded circuit in isolated (ungrounded) plant electrical systems takes time and money. With present techniques, one circuit after another must be shut down until the faulty one is spotted and then the exact spot where a ground has occurred must be located. To make the repair, this trial-and-error method might take hours or days, a crew of electricians, and even interruption of production.

C. D. Allen, maintenance electrician at International Harvester Co.'s Tractor Works, has developed a detector that traces grounds while all circuits are live and equipment is operating. Development and test work was carried out at International Harvester Co. for a year. Manufacture of the Allen Ground Detector is handled by Ferr Manufacturing Co., Chicago, distribution by Excel Electric Service Co.

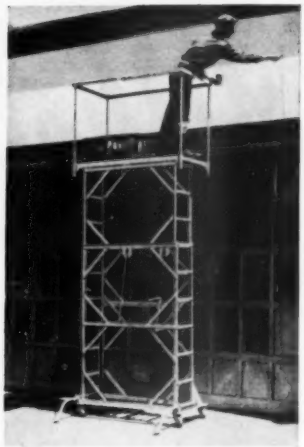
The apparatus consists of a signal generator and a hand signal receiver. A ground is traced and spotted by passing the hand signal receiver along feeders, distribution cabinets, and branch circuits to equipment. A meter on the receiver shows the signal from the generator by giving a pulsating reading. When the point of the ground is reached, the meter changes to a steady reading. A standard unit has a testing range from 220 v. to 550 v., a.c. or d.c. Model SG is designed for permanent installation in substations. Another, model SGP, is for portable work. For details, mark the Reader's Service Card with the code number shown above.

OX-BOW MAGNET CHAIN

G-305 for Reader's Service Card.

TWO new types of ACCO Ox Bow Magnet Chains have just been announced by the American Chain Division, American Chain & Cable Company, Inc. They were designed specially for the gruelling work of handling materials with electro-magnets. Both the 1" and 1¼" ACCO Ox Bow Magnet chains are made in their entirety from alloy steel and heat treated to 125,000 lbs. per square inch tensile strength. To prevent twisting, the yoke supports the chain at the proper angle of 120 degrees. For safety, vital parts are reinforced.

A generous bearing surface is provided by the Alloy Yoke which has a welded holding stud, positioned so as to prevent excessive movement, reducing peening and battering of connections. Also provided is a zerk or Alemite flush fitting for lubrication of the Ox Bow which reduces friction to a minimum thereby increasing the life of chains and magnets. For details, mark the Reader's Service Card with the code number shown above.



MARQUEE SERVICER

G-306 for Reader's Service Card.

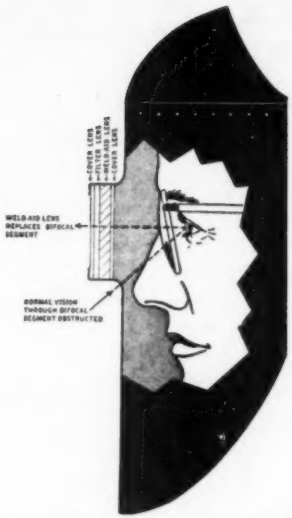
ATLAS INDUSTRIAL CORP., of New York, announces a completely new Marquee Servicer made to reach a 22 ft. ceiling. It comes in one piece with no erection required, no loose parts. This safe, sturdy, dependable servicer is easily rolled, easily raised. It is a compact unit small enough to pass through any ordinary doorway. The all welded steel construction means absolute safety, outrigger brace prevents tilting or rolling. The Hi-Lift Marquee Servicer is a compact, individual unit always ready for work. It is ideal for overhead maintenance, painting, lighting, cleaning, etc. Full information can be obtained by marking the Reader's Service Card with the code number shown above.

WELD-AID LENS

G-307 for Reader's Service Card.

AN INDUSTRIAL optometrist, Dr. Ellis L. Rabben, of Norfolk, Va., has developed, in conjunction with Willson Products, Inc., of Pennsylvania, an optical aid for welders who wear bifocal glasses. The device, manufactured and marketed by Willson under the trade name "Weld-Aid Lens" is designed to help operators who depend on bifocal glasses for near vision. Since the vision slit of the welding helmet is placed for looking straight ahead, it does not permit use of the bifocal segment and welders who wear this type of glasses frequently suffer blurred vision, eyestrain and headaches which seriously reduce their productivity and skill.

The Willson Weld-Aid Lens corrects this condition by supplying clear and unobstructed near vision over the entire area of the window in the helmet, thus replacing the unusable segment power of the weldor's prescription glasses. The lens consists of high grade optical glass accurately ground to a specific power and mounted securely in a durable plastic frame which fits easily into the average welding helmet. It is available in two sizes, 2" x 4⅛" and 2" x 4¼" and in five



powers: 0.75, 1.00, 1.25, 1.50, and 1.75. Complete instructions are furnished with each lens. To protect the Weld-Aid from front and rear pitting, it is recommended that it be placed between the cover and filter lenses. For details, mark the Reader's Service card with the number shown above.

NURSE'S NON-SLIP SHOE

▫ G-308 for Reader's Service Card.

THE shoe that for years has given safe footing on hazardous boat decks, the Sperry Top-Sider, is now available in a dressy new white leather oxford, designed to give nurses non-slip protection plus real foot comfort. It is made with the special non-skid sole that gives dependable footing on wet or skiddy surfaces, including tiles or linoleum floors. The soft white elk leather top is smartly designed, while the inner wood wedge heel and insulating cork midsole offer non-fatigue construction. This light-weight shoe by Sperry Top-Sider is made in women's narrow width in sizes 5 to 11 and in medium width in sizes 4 to 10. Also comes in men's sizes 6 to 12 in both narrow and medium widths. For details, mark the Reader's Service Card with the code number shown above.

CAN TILTER

▫ G-309 for Reader's Service Card.

ANNOUNCED by the General Scientific Equipment Co., the GS easy-pour tilter #15 provides a safe and easy method of pouring liquids from cans into small containers. Built on scientific lines, it is designed to prevent accidents caused by spilling, splashing and carelessness in pouring.

The cradle is made of steel, fits any standard 5 gallon can. All members are riveted or welded. It can also be used for mixing by pouring together the ingredients and with a few rocking motions, the contents is thoroughly mixed. For details, use the prepaid card.

DUST MOP GERMICIDE

▫ G-310 for Reader's Service Card.

A NEW type germicidal product which is used in the dust mop during daily maintenance has been announced by Huntington Laboratories, Inc. The new product, called Antiseptic Huntolene, is said to control all types of communicable disease bacteria and prevent their growth.

It is basically a highly refined dust-laying distillate, used for wood maintenance, yet it has two unusual and important distinctions from ordinary floor maintainers. It sanitizes floors and mops and prevents the multiplication of germs and the spread of disease. Second, the new product rinses out of mops and cloths in soap and water, leaving them clean, sanitary and absorbent for reuse.

The liquid is sprayed into the mop head which is allowed to stand for 24 hours. Then the mop is ready for sweeping. The dust-laying distillate, as the name implies, keeps dust out of the air and on the floor for easy pick up with the dust mop. Best of all, when mops get dirty, they clean easily. Soapy water breaks up Antiseptic Huntolene and floats it and the dirt out of the mop, the Huntington report states. For details, mark the Reader's Service Card with the code number shown above.

SMALL DRY CHEMICAL EXTINGUISHER

▫ G-311 for Reader's Service Card.

A 4-lb. dry chemical fire extinguisher with a rubber hose is now on the market. Introduced by Ansul Chemical Co., the Ansul 4-B offers these advantages: (1) ease of operation; (2) flexibility in fighting overhead and ground-level fires; (3) maximum extinguishing effectiveness for inexperienced operators.

Discharge time has been increased on this model, giving untrained personnel more time to extinguish the fire. Operating range of the Ansul 4-B Extinguisher is 12 to 15 ft. It has received a B2, C2 rating from Underwriters' Laboratories for flammable liquid and electrical fires.

Dry chemical is ejected through a self-closing nozzle which produces the fan-shaped stream pattern. (The extinguisher is pressurized by a 1½ oz. carbon dioxide cylinder in the dry chemical chamber.) Addition of the self-closing nozzle makes the new unit weather-tight.

The unit has a capacity of 4 lb. of dry chemical. When full charged, it weighs 10½ lb. The extinguisher is 19 in. high, 5¼ in. wide and 5½ in. deep. Hose assembly is 15¼ in. Each unit is subjected to 600 psi. hydrostatic test. For details, mark the Reader's Service Card with the number shown above.

In England

(Continued from page 65)

that there should be a standing joint advisory committee to coordinate the development of industrial health services. It was further suggested that this committee should be composed of persons appointed by the Ministry of Health and the Ministry of Labor, together with representatives of the Ministry of Fuel and Power, employers, workers, doctors and nurses; and that there should be a strong medical representation on the committee. The main function of this committee should be to correlate advice to be given subsequently by the various departments of government on major developments affecting industrial health, with special regard to the best use of medical man-power. The report further expresses the opinion that there should eventually be comprehensive provision for occupational health, covering not only industrial establishments, both large and small, but also workers in shops (stores) and offices, to which general health standards of the factory laws should be applied. However, this development is regarded as remote and not to be achieved without much more experience to be gathered from future surveys and experiments. Recognition of the special problems faced by industry and commerce in the area of providing medical service to employees is an indication that perhaps, as in this country, no one method or plan will meet all types of needs. A wider provision of industrial medical and nursing care on a voluntary basis may show the way not only in our own country, but to those in England and elsewhere who are concerned with the many aspects of industrial hygiene.

New Chemical Data Sheet

THE Manufacturing Chemists' Association, Inc., announces publication of chemical Safety Data Sheet SD-39 on Aqueous Hydrochloric Acid and Anhydrous Hydrogen Chloride. The bulletin is another in the series prepared by the Association's General Safety Committee to provide essential information on safe use and handling of hazardous chemicals. Because of the wide application of hydrochloric acid and hydrogen chloride throughout industry, the manual is expected to be one of the most popular in the MCA series.

Since serious injury can be caused by contact of HCl with the skin and eyes or by inhalation of vapors, the manual places much emphasis on the strict enforcement of precautions to insure complete personal safety of handlers. Use of proper protective equipment such as clothing, goggles, etc. and specific first aid and medical treatment are thoroughly discussed.

Among other precautionary measures covered are those designed to prevent fire and explosion resulting from contact of hydrochloric acid solutions with corrosive metals, safe methods for loading and unloading, proper cleansing of containers before reusing, and proper methods of disposing of HCl as waste.

Chemical Safety Data Sheet SD-39, Hydrochloric Acid and Hydrogen Chloride (28 pages) may be purchased at 35 cents a copy from the Manufacturing Chemists' Association, Inc., 246 Woodward Building, Washington 5, D. C. Remittance should accompany order.

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816
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827
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1012
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